Gapping in Modern Standard Arabic: An Agree-Based Analysis

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Abstract: This paper investigates the phenomenon of *Gapping* in coordination structures in Modern Standard Arabic (MSA). It proposes an analysis based on Chomsky's (2005, 2008) Feature-Inheritance model of Agree (FI, henceforth). The analysis diverges from other works on coordination such as Deletion (e.g., Hankamer,1979; Wilder, 1994), Low VP Coordination and VP-Ellipsis (e.g., Toosarvandani, 2013), and Low *v*P Coordination followed by an Across-the-Board (ATB) movement (Johnson, 2009); instead, it analyzes coordination in MSA as a binary relation where every coordinated conjunct is a full CP, and the conjunction is the head of a ConjP. The analysis uses semantic as well as syntactic explanation for *Gapping* in MSA, thus rendering the need for a distinct structure for coordination unnecessary.

Keywords: Agree, Arabic, Coordination, Gapping, Licensing.

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الفجوية في اللغة العربية : تحليل مبني على نظرية التطابق

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المستخلص: يبحث هذا العمل في ظاهرة «الفجوية» في تراكيب العطف في اللغة العربية الفصحىٰ (المعاصرة). يقدم البحث تحليلاً مبنيًا علىٰ نظرية توارث الصفات وهي جزء من نظرية التطابق لتشومسكي (2005، 2008). يقدم هذا العمل تحليلاً مختلفًا عن التحاليل السابقة في هذا المجال والتي ترىٰ «الفجوية» في تراكيب العطف علىٰ أنها عملية حذف (مثلا، عند هانكامر، 1979، وويلدر 1994)، أو أنها عملية عطف لجملتين فعليتين (أو أكثر) متبوعة بحذف إحداهما (مثلا، عند توسارفانداني، 2013)، أو أنها عملية عطف لجملتين فعليتين متبوعة بحركة انتقال شاملة – إلىٰ أعلىٰ التركيب النحوي للعطف – (مثلا، عند جونسون، 2009).

ينظر البحث إلىٰ ظاهرة «الفجوية» علىٰ أنها علاقة ثنائية بين جملتين مصدريتين (CP) ويكون الرابط بينهما هو جملة عطفية (ConjP). يدمج هذا التحليل بين تفسيرين أحدهما نحوي والآخر معنوي وبالتالي يكون اللجوء إلىٰ افتراض تركيبة خاصة بالعطف غير ضروري.

الكلمات المفتاحية: التطابق، العربية، العطف، الحذف، ترخيص الحذف.

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I. Introduction

Coordination structure in various languages has been a subject of investigation for many decades. Coordination can simply be defined as a syntactic process whereby two or more words, phrases, or sentences are joined by using conjunctions (or coordinators) such as *and, or, but,* etc. The coordinated elements are referred to as *conjuncts,* and they can be NPs, VPs, PPs, or APs, as can be seen in the following examples:

(1) We still need the [$_{NP}$ bat] and [$_{NP}$ ball] (Zhang, 2010, p. 38)
(2) The [$_{AP}$ red] and [$_{AP}$ blue] flag (Zhang, 2010, p. 38)
(3) Bill [$_{VP}$ ordered beans] and Sam rice. (Carlson, 2002, p. 11)

Generally, conjuncts are symmetric in the sense that they can share similar syntactic categories and similar Cases (Goodall, 2017); however, counterexamples indicate that coordination can be asymmetric as the following examples show:

(4) Jermaine is [$_{AP}$ boring] and is [$_{NP}$ a fool]. (Zhang, 2010, p. 149)
(5) They are now [$_{AP}$ married] and [$_{VP}$ thinking of having children]. (Goodall, 2017, p. 4)
(6) Pat is [$_{AP}$ healthy] and [$_{PP}$ of sound mind]. (Sag et al. 1985, p.1)

Coordination is argued to be subject to Coordinate Structure Constraint (CSC) (Ross, 1967), which does not allow extraction out of one conjunct only:

(7) *What did Mary eat ------- and [the orange]? (Goodall, p. 9)

Nevertheless, violations of CSC have been documented (see, e.g., Goodall, 2017; Johnson, 2009; Kehler, 2002). Consider the following example (in Winter, 2017, p. 36):

(8) What forms of cancer can you eat herbs and not get?

This is a clear violation of CSC where the extraction occurs from the second conjunct. Moreover, an Across-the-Board extraction is possible provided that it occurs in every conjunct:

(9) Which class$_i$ does John add t_i and Mary drop t_i?

Having touched briefly on the general properties of coordination, I will focus on one type of coordination known as *Gapping*. The term Gapping was first introduced to the literature by Ross (1970). Gapping ever since has received different definitions and analyses in the literature. In the next section, I will present Gapping - in English - and some of its characteristics, and based on which, Gapping in MSA will be presented and contrasted.

II. Gapping in English

Gapping occurs in non-initial conjuncts, and when it occurs, it targets - at least - the verb in the second conjunct of two coordinated conjuncts(1); thus, leaving behind what is known as the *remnants*(2) (e.g., *Sam* and *rice* in example (10)). Notice that the sentence in (3) is argued to have been derived from (10):

(10) Bill ordered beans and Sam ~~ordered~~ rice.

In this example, every conjunct has its own subject: *Bill* and *Sam,* respectively (see, examples (14), (15), and (16) below for other elements which can be deleted).

Gapping is subject to various constraints. For example, it does not occur when the first conjunct is negated as exemplified in (11):

(11) *John didn't see Mary and Bill Sue. (Sag et al. 1985, p.158)

Note, however, that another type of coordination, namely VP-Ellipsis(3), applies when the first conjunct is negated:

(12) John didn't see Mary, but Bill did ~~see Mary~~.

Hankamer (1979) noted that Gapping cannot affect a verb in an embedded clause, as the ungrammaticality of (13) indicates:

(1) Or probably the last verb in a string of coordinations as in the Multiple Coordinate Complex (see, Winter, 2017, for more examples).
(2) Note that *remnants* may not form constituents (see, Goodall, 2017, among others).
(3) More on VP-Ellipsis and why Gapping sometimes is analyzed as an instance of this process will be presented later in the discussion.

(13) *Alfonse stole the emeralds, and I think that Muggsy ~~stole~~ the pearls. (Hankamer, 1979, p. 19)

Based on such examples, Hankamer proposed the No Embedding Constraint as one constraint to control Gapping.

Moreover, Gapping has been observed to target other elements in a sentence (i.e., other than verbs); for example, Hankamer (1979) argues that (forward) Gapping in (14) results from a "simple deletion operation: i.e. deletion of the second of two identical corresponding constituents in a conjoined structure" (p. 55):

(14) John cooked the eggplant and ~~John~~ ate the mushrooms.
(15) Some had ordered mussels, and others ~~had ordered~~ swordfish. (Toosarvandani, 2013, p. 1)

Note that the subject *John* in (14) is the same in both conjuncts, thus it gaps in the second conjunct. Likewise, the auxiliary *had* and the verb *ordered* in example (15) were deleted.

Equally, Gapping can target other phrases (PP, NP, AP, TP, etc.). In (16), the gapped string is argued to be *wants to try cooking*:

(16) Mary wants to try cooking a pie and John ____ a soufflé. (Goodall, p. 12)

It has also been observed that Gapping imposes certain parallelism conditions such as matching of the orders, Case markings, and syntactic (categorial) parallelism between the correlates; nevertheless, such parallelism can be challenged(4) by the following examples:

(17) Mary and him went to the restaurant for dinner. (Goodall, p. 4)
(18) John walked slowly and with great care. (In Zhang, 2010, p. 20)

A common observation from the examples above shows that there is generally a verbal element gapped in all of those examples, leading some analyses to conclude that Gapping is - more or less- a form of VP-Ellipsis (see, e.g., Toosarvandani, 2013).

(4) It must be stated here that the asymmetric behavior of coordination is not the main concern for this analysis, for it is be limited to symmetric cases of coordination.

However, it has been proven that Gapping is not VP-Ellipsis. For example, in VP-Ellipsis, an entire VP in the second conjunct in coordination structures gets deleted, however, an auxiliary is left behind:

(19) Elves don't practice necromancy and trolls do ~~practice necromancy~~. (Erschler, 2018, p. 17)

In this way, VP-Ellipsis is similar to Pseudogapping. In fact, researchers such as Johnson (2009) analyzes Pseudogapping as an instance of VP-Ellipsis.

Moreover, Gapping differs from VP-Ellipsis in that it is restricted to non-initial conjuncts, as the ungrammaticality for this example indicates:

(20) *Bill the pancake and John prepared the sandwiches.

Johnson (2009, p. 29) highlights some similarities between VP-Ellipsis and Gapping. One of such similarities concerns the effect of the relative scopes of the quantificational DPs. Specifically, the relative scopes of the subjects and objects in the first conjunct (of both structures) match those of the subjects and deleted verbs (and objects) in the second conjunct:

(21) A student will talk to every alumna first and a dean will immediately afterwards. (VP-Ellipsis)
(22) A student will talk to every alumna first and a dean immediately afterwards. (Gapping)

Notice, however, that the presence of a name (i.e., *Dean Edwards* in (23) and (24)) blocks the wide interpretation given to the object[(5)] as in:

(23) A student will talk to every alumna first and Dean Edwards will immediately afterwards. (VP-Ellipsis)
(24) A student will talk to every alumna first and Dean Edwards immediately afterwards. (Gapping)

Still, however, Johnson (2009, p. 293) argues that Gapping derives a different scope relation from VP-Ellipsis. For example, the subject *woman* in the first conjunct can bind the pronoun *her* in the second

(5) Thanks are due to one of the reviewers for highlighting this point.

conjunct in example (25):

(25) No woman can join the army and her girlfriend the navy.

However, the same kind of scope relation between the *woman* and the pronoun *her* is not possible in Pseudogapping:

(26) No woman can join the army and/but her girlfriend can the navy.

Johnson thus concludes that such similarities between VP-Ellipsis (and thus Pseudogapping) and Gapping cannot be taken as a diagnostic to show they are the same.

Gapping is different from subordination in that it cannot occur in subordinating conjunctions, as exemplified in (27):

(27) Sandy plays the guitar, {and/or *because/*if/*better than} Betsy [____] The harmonica.
(28) Sandy plays the guitar {and/or/because/after/if/better than} Betsy does/did [____] too. (In Albukhari, 2016, p. 55)

Note, however, that Pseudogapping can occur in subordination structures as in (28).

As we have seen in example (13) above, Gapping cannot occur in embedded structures, but Pseudogapping can:

(29) *Amanda went to Santa Cruz, and Bill thinks that Claire [____] to Monterrey. Gapping in embedded structure. (In Albukhari, 2016, p. 56)

Finally, Gapping is a recursive process by which a number of non-initial conjuncts lack certain elements, as exemplified in (Alzaidi, 2018, p. 98):

(30) Jane's birthday is in May, John's in June, and Rex's in July.

This section presented some characteristics of Gapping in English. In the following section, I will present some of the previous analyses proposed for Gapping. The internal structure of coordinated conjuncts will be discussed.

III. Previous Analyses for Gapping

A. The internal structure of conjuncts:

The standard approach to coordination entails that conjuncts are constituents of the same type of syntactic category (i.e., the Law of Coordination of Likes); however, empirical data pose challenges to this conclusion (see, e.g., sentences in (4), (5), and (6)). Such inconsistences in the behavior of coordination have added to the puzzling nature of coordination.

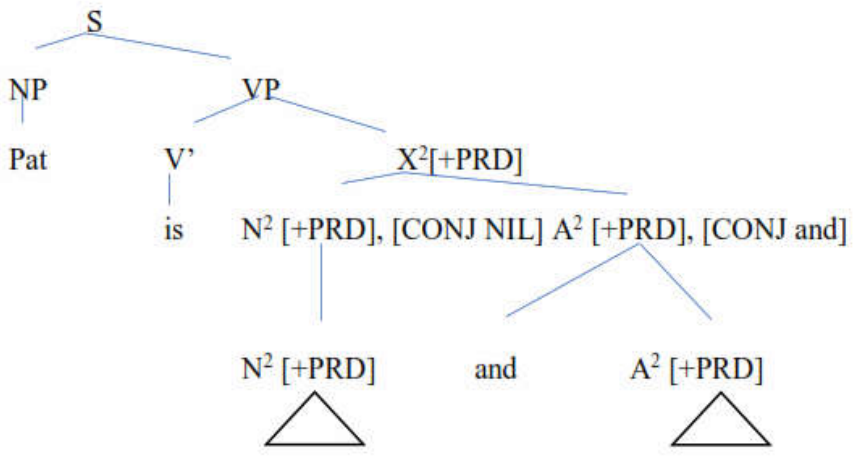
Various analyses have been proposed for the internal structure of conjuncts. Sag et al. (1985), for example, proposed that coordination in example (31) is derived by a transformational rule called "Conjunction Reduction" (p. 134).

(31) Kim sang and was accompanied by Sandy. (p. 134)

Inspired by Chomsky's (1970) work on features specification for syntactic categories, Sag et al. (1985), argued that coordination could be explained based on such features, where a feature CONJ could be present or absent on a category. They further argued that the default specification for CONJ was to have no specification at all; they however maintained that it was possible for a CONJ specification to be present on a *mother* category.

As for the semantic interpretation of a conjunction, Sag et al. argued that it was the value of α which provided the meaning of the conjunction, not the conjunction. Thus, the following representation was provided for the sentence in (33):

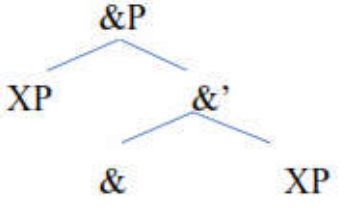
(32)



(33) Pat is a republican and proud of it.

Wilder (1994) argues for a modification to 'small conjunct hypothesis', which entails that a conjunct can be of any category and assumes that "[c]onjuncts are extended projections (CPs, DPs, …)" (p. 291). That is, they can be clausal conjuncts. Gapping then, according to Wilder, is an instance of *forward deletion*(6) (like left-peripheral deletion) which targets large constituents; thus, under this analysis, conjuncts are constituents with maximal projections (p. 309). Building on Munn (1987) and Larson (1990), Wilder analyzes conjunctions *and, or, etc.* as heads which take root CPs(7) as their arguments (p. 309); specifically, under this analysis, conjuncts are now specifiers and complements, as in (34):

(34)



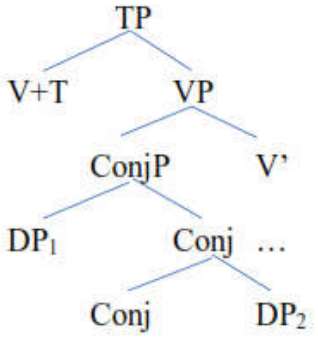
(6) Gapping to Wilder is one example of Ellipsis, or deletion of phonological material which must be visible for LF interpretation.

(7) Note that according to Wilder, all non-DP-Conjuncts are root CPs. (p. 312).

Johannessen (1998) argues that coordination is a Conjunction Phrase (ConjP) headed by a Conj. The first conjunct is in spec position of ConjP and the second conjunct is the complement of the head of this phrase (Spec-head structure):

(35) Spec-head structure: $[_{CoP[X]}$ X $[_{Co'}$ Co Y]]

(36)

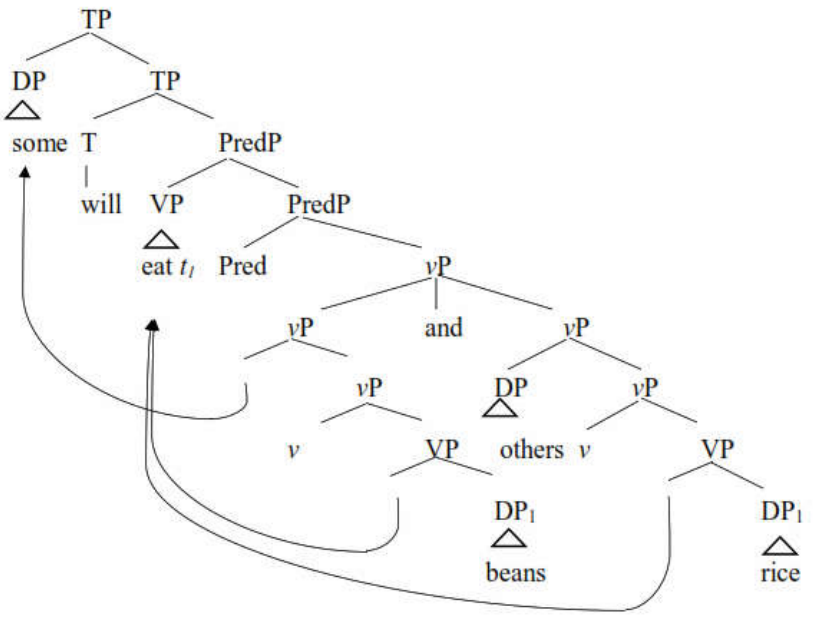


According to Johannessen, a spec-head agreement is established between DP_1 and the head Conj, and as a result, the Conj head inherits the syntactic category features of DP_1. As for Case, Johannessen assumes that the head Conj is a *case-licenser* and the Case of the second conjunct is a default Case. It is worth mentioning here that conjuncts in Johannessen's analysis can be CPs (p. 204).

Johnson (2005, 2009) argues that coordination is a result of a process he called *Low Coordination Reduction.* In this analysis, coordination is formed by Low *v*P Coordination whereby the functional *v*P is branching into two *v*Ps and the coordinator (or conjunction). Johnson argues that there are two lexical verbs (i.e., 'eat' in example (37)) and each of which performs an Across-The-Board (ATB) movement to spec of PredP. The subject of the first conjunct must raise to spec TP to give the correct word order, as in (38):

(37) Some will eat beans and others rice (Johnson, 2009, p. 22)

(38)



According to Johnson, *Low Coordination Reduction* proves that Gapping cannot be reduced to VP-Ellipsis, for it blocks VP-Ellipsis. To maintain this argument, Johnson suggests that the verb must be placed outside the coordination, thus when *v*Ps are coordinated, Gapping applies, and an ATB movement of VP occurs.

Johnson assumed that for the Case on the subject to be licensed, it must undergo an A-movement to spec TP, thus CSC cannot be a constraint on this kind of movement. As for the Case of the subject in the second conjunct, it receives case in-situ (i.e., in spec *v*P).

Toosarvandani (2013) argues that Gapping arises through a mechanism of *Low vP Coordination* (following Johnson, 2005, 2009) and *VP-Ellipsis* (contra Johnson, 2009). Concretely, according to Toosarvandani, for Ellipsis to occur, the elided verb and its antecedent in the first conjunct must be identical, thus the DP 'mussels' in example (39) must raise outside VP[8] otherwise it would be subject to elision.

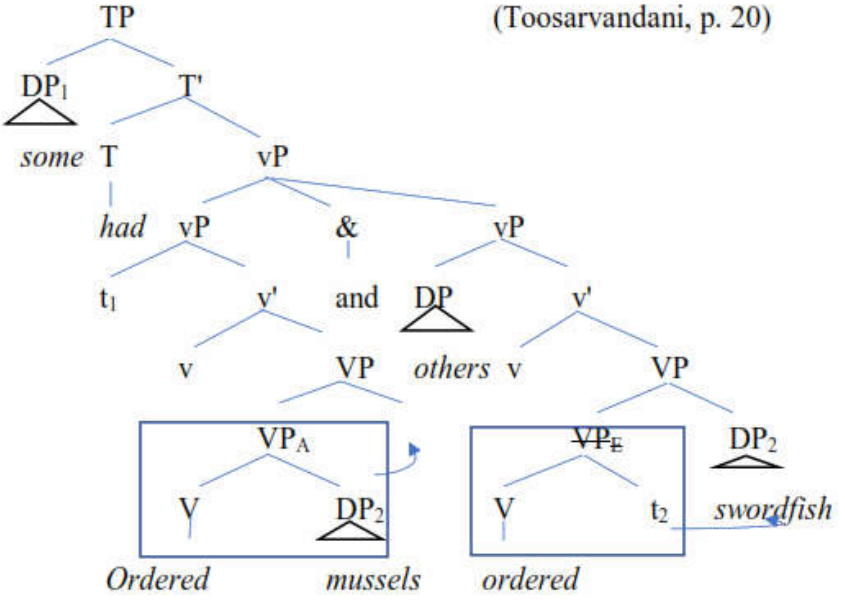
(8) This is achieved through a covert movement at LF or PF (cf. Merchant, 2001, 2008).

(Note that the same operation applies to the DP 'swordfish' in the second conjunct as shown in (40)):

(39) Some had ordered mussels, and others -- swordfish.

Notice further that there is no need to move the antecedent verb outside the coordination (e.g., to spec PredP, as in Johnson's (2009) analysis).

(40)



As far as Case licensing on the subjects of the two conjuncts is concerned, Toosarvandani follows Johnson's (2009) assumptions that the subject *some* raises to spec TP, while the subject *others* receives Case in-situ[(9)].

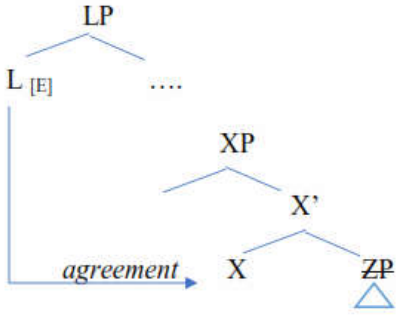
Following Merchant (2001, 2004[(10)]), Erschler (2018) proposes that

(9) Note that raising of the subject of the first conjunct to spec TP is a violation of CSC; however, this can be explained if we consider Fox's (2000) argument that CSC holds at LF representation, which indicates that movement is not subject to this constraint.

(10) Note however that according to Merchant (2004) Ellipsis in sentence fragments is licensed by a feature E, which is hosted by a head whose complement must be deleted.

Gapping is derived through a process of *agreement.* Specifically, two separate heads derive Gapping where the higher head L (in (41)) hosts a licensing feature: E, and this head must agree with the lower head X whose whole complement ZP is to be deleted:

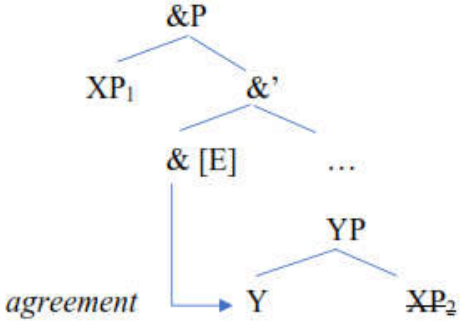
(41)



(p. 54)

To account for the across-linguistic variation in Ellipsis, Erschler proposes that the E-feature can be hosted by different heads in different languages. Erschler further adds that Ellipsis involves movement and deletion whereby the remnants move out of the Ellipsis site and the hosting structure deletes. Accordingly, the E-feature in (42) is *uninterpretable* and its interpretable counterpart is the category of X (or XP). This kind of agreement is subject to locality as well as minimality conditions. Therefore, agreement can be blocked by an intervening CP or closer, matching head. The agreement morphology is then manifested by the "non-pronouncement" of the complement (p. 53). According to Erschler, the E-feature in English (and Dutch) is located on the head of & P in (42):

(42)



(Erschler , p. 95)

To explain why Gapping (in English) cannot occur in an embedded finite clause, Erschler argues that it is a result of agreement failure between the licensing head and the head which its complement is to be deleted (due to locality reasons).Thus, the ungrammaticality in examples such as (13) (repeated here as (43)) is due to a constraint on agreement: A CP blocks agreement (embedded Gapping):

(43) * Alfonse stole the emeralds, and I think that Muggsy ~~stole~~ the pearls. (Hankamer, 1979, p. 19)

Aelbrecht (2010) argues that *agreement* is a technical mechanism which licenses Ellipsis. In her argument, Aelbrecht proposes that in some cases of Ellipsis it is possible for more than one head to coincide to license Ellipsis. Gapping in English is one of such cases; that is, VP-Ellipsis in English is licensed by the presence of the finite form of auxiliaries *have* or *be*. Thus, the ungrammaticality of example (44) is due to the presence of a non-finite form of *have*, which cannot license Ellipsis:

(44) *I hadn't thought about it, but I recall Max having. (Aelbrecht, 2012, p. 15)

Having presented some analyses of Gapping in English, I will briefly discuss some analyses proposed for the Gapping phenomenon in Arabic.

IV. Arabic Gapping constructions

Different analyses have been presented for the coordination structure in a handful varieties of Arabic (e.g., Jordanian, Libyan, Hijazi, Moroccan, and Lebanese Arabic). Consider the following examples of Gapping in JA and Hijazi Arabic, respectively:

(45) ħasan b-j-akol pitza, w ʕumar [_____] burger (Albukhari, 2016, p. 5)
Hasan Asp-3ms-eat.IMP pizza and Omar burger
'Hasan eats pizza, and Omar [eats] burger.'

(46) xa: lid ra:ħ jiddah w sa:rah ar-riya:dˤ.
Khaled go.pfv.3sm and Sarah the Riyadh (Alzaidi, 2018, p. 99)
'Khaled went to Jeddah, and Sara to Riyadh.'

In each example, there are two conjuncts connected be the conjunction *w* ‘and’.

In the following paragraphs, I will present some properties of Gapping in MSA. These properties will be compared to those of Gapping in English. Consider the following examples from MSA:

(47) ʔakala ar-rajul-u aṭ-ṭaʕam-a wa Šariba al-walad-u al-maaʔ-a
ate(3.ms) Def-man-Nom Def-food-Acc and drank(3.ms) Def-boy-Nom Def-water-Acc
‘The man ate the food and the boy drank the water’

(48) ʔakala Ali-un at-tufaaħ-at-a wa ~~ʔakala~~ Saad-un al-xubz-a
Ate (3ms) Ali-Nom Def-apple-f-Acc and ~~ate(3ms)~~ Saad-Nom Def-bread-Acc
‘Ali ate the apple and Saad the bread’

(49) ḍaraba Ali-un al-walad-a wa ~~ḍarab~~a ~~Ali-un~~ al-bint-a
hit (3ms) Ali-Nom Def-boy-Acc and ~~hit(3ms)~~ ~~Ali-Nom~~ Def-girl-Acc
‘Ali hit the boy and the girl’

In example (47), there are two coordinated conjuncts connected by the conjunction *wa* ‘and’. Each conjunct has a different subject (i.e., *ar-rajul* 'the man' vs. *al-walad* 'the boy' and different verb (i.e., *ʔakala* ‘ate(3ms)’ vs. *Šariba* ‘drank(3.ms)’). Note that Gapping does not apply in this example since there are no redundant syntactic elements, which can be deleted.

MSA shows constructions of Gapping as exemplified in (48), for instance. In this example, only the verb *ʔakala* 'ate(3ms)' in the second conjunct is deleted. The verb here gets deleted under identity with an antecedent in the first conjunct; that is, it can be recovered from the similar verb in the first conjunct. Notice further that the subjects of the two conjuncts are not similar.

When the subjects as well as the verbs in each conjunct are similar (as in example (49)) they can be elided in the second conjunct (under identity with their antecedents in the first conjunct). Thus, the verb *ḍarab* ‘hit (3ms) and the subject *Ali* are gapped.

Thus far, we have seen that Gapping in MSA resembles Gapping in English in that it occurs in non-initial conjuncts, and when it occurs, it targets the identical verb (and subject) in the second conjunct.

Like in English, Gapping in MSA does not occur when the first conjunct is negated:

(50) *lam yara Ali-un Saad-an wa Muhammad-un Fatimat-a
not see(3ms) Ali-Nom Saad-Acc and Muhammad-Nom Fatimah-Acc
Intended: 'Ali did not see Saad and Muhammad did not see Fatimah'

We have seen that Gapping in English cannot affect a verb in an embedded clause. The corresponding structure in MSA is similarly ungrammatical, as can be seen in the following example:

(51) * ðahaba Ali-un ʔila al-madrasat-i, wa yaʕtaqidu Saad-un
went(3ms) Ali-Nom to Def-school-Gen, and thinks(3ms) Saad-Nom
ʔanna Fatimat-a [____] ʔila as-suuq-i.
that Ftimah-Acc to Def-market-Gen

Intended: 'Ali went to school, and Saad thinks that Fatimah went to the market' Like in English(11), Gapping in MSA can target non-verbal elements in the second conjunct (i.e., elements other than verbs and/or subjects):

(52) marar-tu bi Zayd-in wa ~~marartu~~ ~~bi~~ Amr-in
passed-(1s) by Zayd-Gen. and passed-(1s) by Amr-Gen
"I passed by Zayd and Amr'

In this example, the verb and the subject *-tu* as well as the preposition *bi* 'by' are deleted in the second conjunct. (Note that the Genitive Case on the object *Amr* indicates that the preposition is the source for this Case (possibly through Agree)).

One of the reviewers wonders if MSA shows a similar structure to English example in (53). It seems that the corresponding example in MSA in (54) is not possible:

(53) Peter has given magazines to John and Mary books.

(54) * ʔaʕṭa Ali-un al-qalam-a li ar-rajul-i wa Saad-un al-kutub-a
gave(3ms) Ali-Nom Def-pen-Acc to Def-man-Gen and Saad-Nom Def-books-Acc
Intended: 'Ali gave the pen to the man and the books to Saad'

(11) See the following, similar examples from Goodall (2017, p. 16), where (a) is derived from (b):
a. The old man fed the birds and the squirrels
b. The old man fed the birds and ~~the old man fed~~ the squirrels

The second conjunct in (54) misses, in addition to the verb and the subject, the preposition *li* 'to', and the sentence is rendered ungrammatical. However, if the order of the elements - within the second conjunct - is changed to match that of the first conjunct, and if we add the preposition *li*, then the sentence becomes acceptable:

(55) ʔaʕṭa Ali-un al-qalam-a li ar-rajul-i wa al-kutub-a li Saad-in
gave Ali-Nom Def-pen-Acc to Def-man-Gen and Def-books-Acc to Saad-Gen
Intended: Ali gave the pen to the man and the books to Saad'

Gapping in MSA, like in English, observes certain parallelism conditions such as matching of the orders, Case markings, and syntactic (categorial) parallelism between the coordinated conjuncts(12), for example:

(56) *ya-qumu Zayd-un wa qaʕada
ASP-stand(3ms) Zayd-Nom and sat(3ms)
'Zayd stands /is standing (up) and sat (down)'

The ungrammaticality of this example is due to the difference in tense between the first and second conjuncts (i.e., present/progressive vs. past).

We have seen that Gapping in English shows some similarities to cases of VP-Ellipsis(13), and we have seen that such similarities should not be used as diagnostics to relate the two processes (see, Johnson, 2009, for arguments). Gapping in MSA is different from VP-Ellipsis in various ways. For instance, in VP-Ellipsis, an entire VP in the second conjunct in coordination structures gets deleted, however, an auxiliary is left behind (see example (19) above) . This is not possible in MSA, consider the following examples:

(57) kaana ar-rajul-u ya-ʔkulu aṭ-ṭaʕam-a wa ya-Šrabu al-maaʔ-a
was(3ms) Def-man-Nom Asp-eat(3ms) Def-food-Acc and Asp-drink(3ms) Def-water-Acc
'The man was eating the food and drinking the water'

(12) We have seen in sections (I) and (II) that such parallelism conditions can be challenged.

(13) It has been indicated that Pseudogapping was analyzed as an instance of VP-Ellipsis (see, Johnson, 2009).

(58) kaana ar-rajul-u qad ʔakala aṭ-ṭaʕam-a wa Šariba al-maaʔ-a
was(3ms) Def-man-Nom already ate(3.m) Def-food-Acc and drank(3.m) Def-water-Acc
Intended: 'The man has already eaten the food and drunk the water'

In these examples, the auxiliary *kaan* 'was' as well as the particle *qad* 'already' delete in the second conjunct (along with the subjects). This indicates that Gapping in MSA cannot be analyzed as VP-Ellipsis. In addition, it is save to claim that Pseudogapping is not a possible structure in MSA either (see similar conclusions for JA and for LA by Albukhari, 2016; and Algryani, 2010, respectively).

Gapping in MSA shows another similarity to English in that it is limited to non-initial conjuncts. Compare this example from MSA with its corresponding English structure in (20):

(59) *Ahmad-u aṭ-ṭaʕam-a wa ʔaʕada Saad-un al-ħalwa
Ahmad-Nom Def-food-Acc and prepared(3ms) Saad-Nom Def-dessert-Acc
Intended: 'Ahmad prepared the food and Saad the dessert'

We have also seen that Gapping, in English, derives a different scope relation from Pseudogapping by allowing the subject in the first conjunct to bind a pronoun in the second conjunct, as in (25) above (repeated her as (60)):

(60) No woman can join the army and her girlfriend the navy.

The same scopal relation occurs in MSA Gapping constructions:

(61) ħaḍara aṭ-ṭaalib-u wa ʔax-u-hu
came(3ms) Def-student-Nom and brother-Nom-his
'The student came and his brother'

In (61), the subject *aṭ-ṭaalib* 'the student' can bind the pronoun *-hu* 'his' in the second conjunct.

Another similarity between Gapping structures in English and in MSA is related to the fact that Gapping cannot occur in subordinating conjunctions(14), as exemplified in (62):

(14) It has been shown that Pseudogapping can occur with subordinating conjunctions (see, example 28 above).

(62) *ʔakala Ali-un aṭ-ṭaʕam-a *li'ana/*itha/*baynama Amr-un al-fakihat-a
ate(3ms) Ali-Nom Def-food-Acc *because/*if/*while Amr-Nom Def-fruit-Acc

It has also been shown that Gapping is a recursive process in English. The same is true for Gapping in MSA, consider the following example:

(63) ʔakala Saeed-un al-fakihat-a wa Ali-un al-laħm-a wa Fatimat-u al-xubz-a
ate(3ms) Saeed-Nom Def-fruit-Acc and Ali-Nom Def-meat-Acc and Fatimah-Nom Def-bread-Acc
Intended: 'Saeed ate the fruit and Ali the meat and Fatimah the bread'

Note that verb *ʔakala* 'ate' is deleted in the second as well as the third conjuncts.

One of the reviewers wonders if MSA shows cases of ATB extraction as in the following example:

(64) Which apple did John take and which apple Mary?

A corresponding example in Arabic is not grammatical(15), as exemplified in (65):

(65) *ʔaya tuffaħat-in ʔakala Muhammad-un wa ʔaya tuffaħat-in Fatimat-u?
which apple-Gen ate(3ms) Muhammad-Nom and which apple-Gen Fatimat-Nom?

It seems that MSA differs from English in this context, and ATB extraction is not possible in MSA.

One last point to be highlighted concerns the effect of the relative scopes of the quantificational DPs. We have discussed similar relation in examples (22) and (24). The following examples are suggested by one of the reviewers:

(66) A student accompanied every visitor.
(67) A student accompanied every visitor yesterday, and Mr. Johnson, today.

We have pointed out that a wide scope interpretation holds for the object in (66). However, this wide scope reading is prevented in (67),

(15) However, this structure becomes better if the verb in the second conjunct is not deleted:
(a) ʔaya tuffaħat-in ʔakala Muhammad-un wa ʔaya tuffaħat-in ***ʔakalat*** Fatimat-u?

due to the presence of the subject: *Mr. Johnson.* That is, the deleted object cannot scope over the subject *Mr. Johnson,* and the same holds between the subject and object in the first conjunct (i.e., no wide scope interpretation is permitted for the object)(16).

After presenting some of the properties of Gapping in MSA, I will briefly present one of the very few analyses of Gapping conducted in one dialect of Arabic (i.e., Jordanian Arabic).

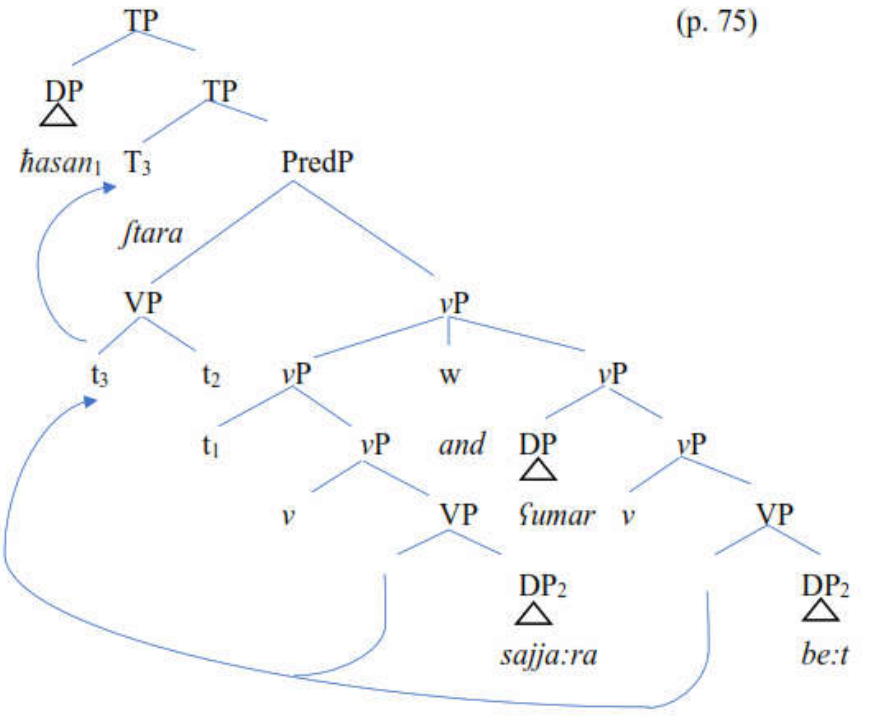
V. Gapping in Jordanian Arabic (JA)

Following Johnson (2009), Albukhari (2016) provides an analysis for Gapping in JA. In her analysis, the *Low vP Coordination* construction headed by a single T is formed and the gap is the result of an ATB movement. Moreover, based on the tense and aspect of the verb involved, Albukhari argues for two versions of the ATB movement in such constructions. Particularly, unlike Johnson, Albukhari proposes that for the perfective verb (i.e., past tense) in example (68), there are two types of ATB movement.

(68) ħasan ʃtara sajja:ra, w ʕumar [ʃtara] be:t
Hasan buy.3ms.PER car and Omar [buy.3ms.PER] house
'Hasan bought a car, and Omar a house.'

(16) Assuming that the same kind of scope interpretation holds in MSA, the (deleted) object in the second conjunct in (a) cannot scope over the subject *al-mudiir* 'the rector'. Consequently, such scopal relation is prevented between the object and the subject in the first conjunct:
(a) rafaqa ṭaalib-un kulla zaaʔir-in bi-al-'msi wa ~~rafaqa~~ al-mudiir-u ~~kulla~~
accompanied(3m) student-Nom-Indef every visit-Gen yesterday, and accompanied(3m) Def-rector-Nom ~~every~~ ~~zaa'ir-in~~ alyawma ~~visitor-Gen~~ today
Hopefully, this kind of structures will be addressed in another work, for it would take the current argument off-course.

(69)



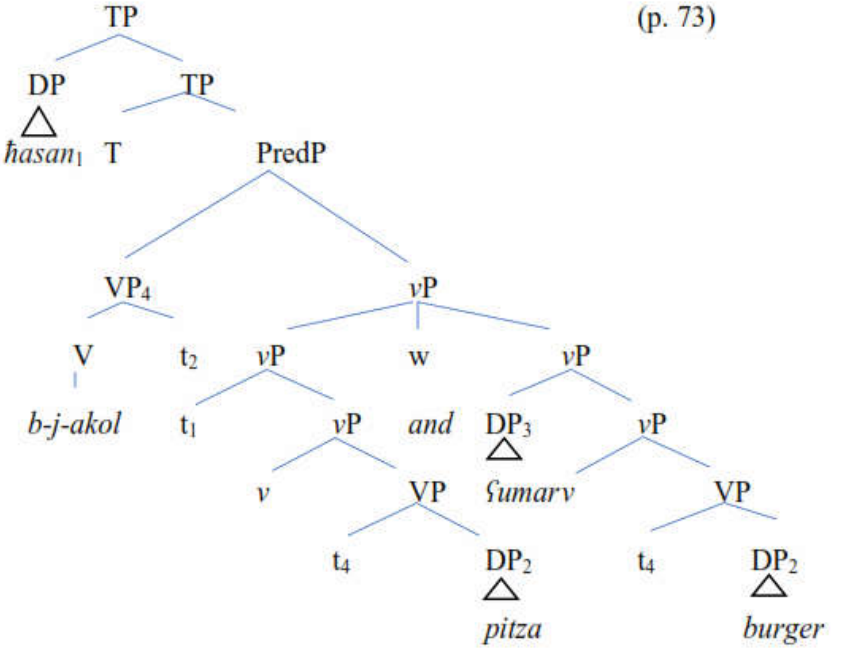
In this analysis, the subject of the first conjunct raises to spec TP (under the assumption that the subject receives Case in its original position), while the subject of the second conjunct remains in-situ and the Case is a default Case. The objects in both conjuncts adjoin the two *v*Ps (rightward movement). Only then does ATB movement applies(17) and the two verbs move to a position higher than *v*P but lower than spec TP (i.e., PredP). The verb then raises further to T (to satisfy a requirement on V to T raising in JA). That is, Albukhari argues for an additional ATB movement of the head V of this VP to T (building on Benmamoun's (2000) argument that in past tense and perfective forms of the verbs, a V to T movement is required in Arabic).

(17) Note that for ATB movement to apply, the two VPs must be parallel and a contrastive relationship must also be present between the remnants (i.e., *ʕumar* and *burger*) and their correlates (i.e., *ħasan* and *pitza*), see also Kuno (1976).

Nevertheless, in case of an imperfective verb, no further movement (*a la* V to T) is expected, thus ATB movement stops at the position argued by Johnson (2009): PredP. Consider the representation in (71) for Gapping in example (70):

(70) ħasan b-j-akol pitza, w ʕumar [_____] burger
Hasan Asp-3ms-eat.IMP pizza and Omar burger
'Hasan eats pizza, and Omar [eats] burger.' (simultaneously)

(71)



(p. 73)

In the next section, a new analysis will be introduced for Gapping in MSA. This analysis adopts Chomsky's (2005, 2008) FI mode of Agree. It will be shown that Gapping can be analyzed in a binary branching configuration. The analysis argues against VP-Ellipsis as well as ATB movement, as previously been proposed in various analyses.

VI. The proposed Analysis

Before presenting the new analysis, let us reconsider examples of Gapping in MSA (examples (47), (48), and (49), repeated here as (72), (73), and (74)):

(72) ʔakala ar-rajul-u aṭ-ṭaʕam-a wa Šariba al-walad-u al-maaʔ-a
ate(3.ms) Def-man-Nom Def-food-Acc and drank(3.ms) Def-boy-Nom Def-water-Acc
'The man ate the food and the boy drank the water'

(73) ʔakala Ali-un at-tufaaħ-at-a wa ~~ʔakala~~ Saad-un al-xubz-a
ate(3ms) Ali-Nom Def-apple-f-Acc and ~~ate(3ms)~~ Saad-Nom Def-bread-Acc
'Ali ate the apple and Saad the bread'

(74) ḍaraba Ali-un al-walad-a wa ~~ḍaraba~~ ~~Ali-un~~ al-bint-a
hit(3ms) Ali-Nom Def-boy-Acc and ~~hit(3ms)~~ ~~Ali-Nom~~ Def-girl-Acc
'Ali hit the boy and the girl'

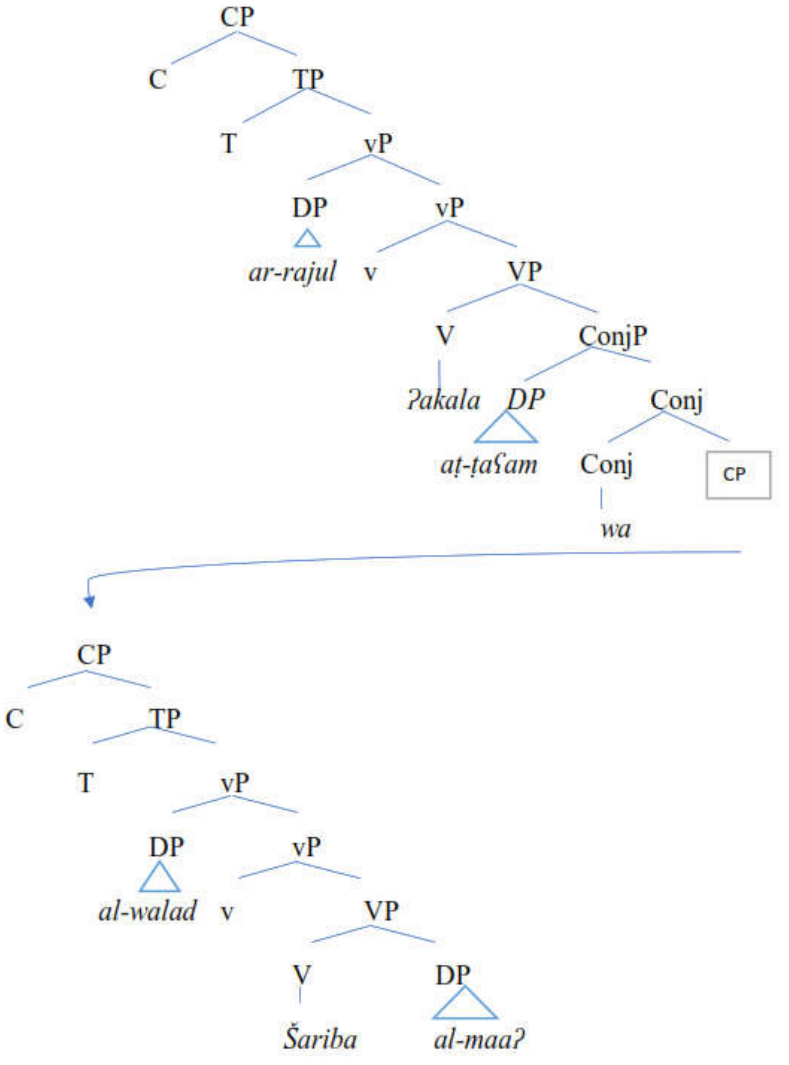
To explain how coordination works in these examples, some assumptions regarding the internal structure for the conjuncts must be made. Borrowing Zhang's (2010) terminology, I will refer to the first part in the coordination structures in MSA (e.g., *ʔakal-a ar-rajul-u aṭ-ṭaʕam-a* in example (72) as the External Conjunct, and the second part will be referred to as the Internal Conjunct. Notice that External Conjunct follows the canonical word order for MSA: VSO. I will follow Sag, et al (1985) and assume that the word order of the elements in the Internal Conjunct corresponds to that of the External Conjunct.

I will further assume, following Hankamer (1979), that the verb *ʔakala* 'ate' in example (73) exists in the Internal Conjunct, but it undergoes deletion at some point in the derivation. Likewise, I will assume that the subject of the Internal Conjunct in example (74) (i.e., *Ali*) gets elided under identity with its corresponding subject in the External Conjunct (i.e., being identical). It is also possible to assume that this subject could be an unpronounced pronominal *pro*. Assuming a *pro* subject is not a novel idea; it is has been assumed in the literature (see, e.g., Brandner & Fanselow, 1992; Van Valin, 1986; Wilder, 1994) that the deleted subject in the Internal Conjunct is a null pronominal *pro* which is coreferential with the subject *Ali* in the External Conjunct (see, the configuration in (77) below for shared subject coordination).

In the current analysis, it will be shown that coordination structure in MSA does not require a distinctive structure; in other words, it can be analyzed as a binary, but not ternary, relation (following Chomsky, 2013; Munn, 1987; Ross, 1967; Zhang, 2010, among others). Moreover, it will be shown that resorting to ATB movement and/or

Heavy NP Shift is unnecessary (cf. Albukhari, 2016; Johnson, 2009, among others). Putting these assumptions together, the following configuration is proposed for the sentence in (72):

(75)



In (75), it is assumed, following Johannessen (1998) that the conjunction (Conj) *wa* 'and' is the head of a Conjunction Phrase (ConjP). However, contra Johannessen, the specifier of this phrase shall host the object of the of the External Conjunct: *aṭ-ṭaʕam* 'the food in example (72).

Inspired by Kubota & Levine (2016) and Wilder (1994), it will further be assumed that the gapped conjunct (the Internal Conjunct for *wa*) is a CP, not a VP or TP; in fact, every conjunct will be treated as a CP by itself. Assuming a full CP is motivated and will prove to be necessary for the current analysis, as will be shown in the following lines.

As has been indicated, this analysis adopts Chomsky's (2005, 2008) Feature-Inheritance (FI) model of Agree. Under this model, it will be argued that the Nominative Cases on the subjects in both conjuncts are valued through an Agree process in a Probe-Goal fashion. More specifically, in every Conjunct, the C head bears a set of features which must be transferred to the head T of TP. Particularly, C bears a set of *unvalued* φ-features and a *valued* Case feature (i.e., Nominative). The head T inherits these features and a C-T Probe is formed. In the same fashion, the *v* head bears a set of *unvalued* φ-features and a *valued* Case feature (i.e., Accusative) which must be transferred to and inherited by the lexical head V, thus forming a *v*-V Probe.

According to the FI model, the Goals for such Probes must bear a set of *valued* φ-features and *unvalued* Case features. Therefore, when a C-T Probe probes for a Goal, it receives valuation for its unvalued φ-features, and the Goal receives Nom. Case for its unvalued Case feature. Likewise, a *v*-V Probe receives valuation for its unvalued φ-features and equally values the unvalued Case feature on its Goal (i.e., Accusative).

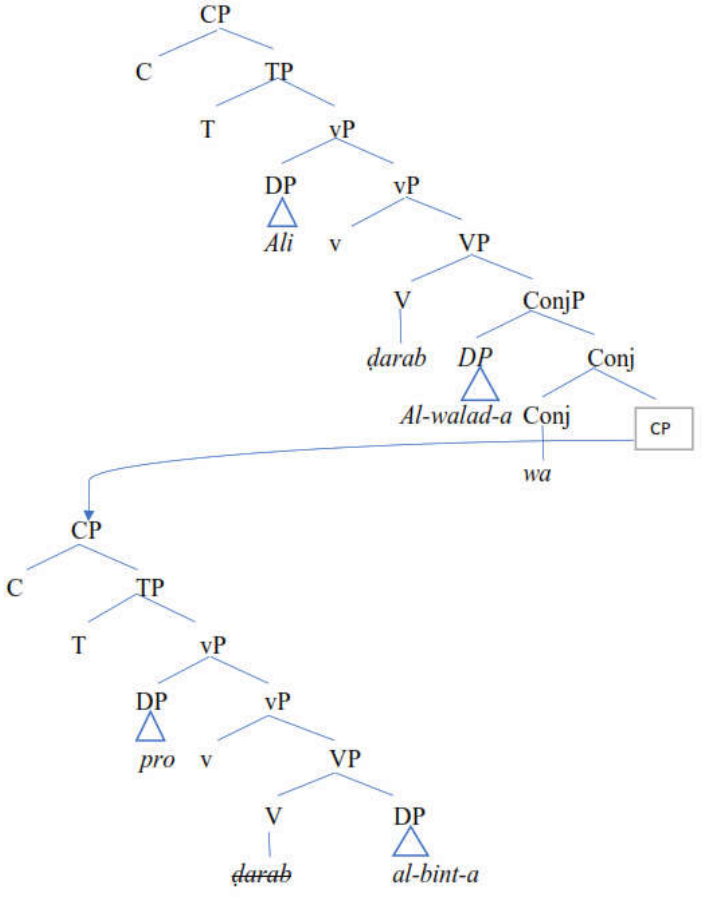
Based on the configuration in (75), the derivation for the Internal Conjunct proceeds as follows: The functional head *v* transfers its set of features (i.e., unvalued φ-features and valued Case) to V. The *v*-V Probe probes for Goals. The Probe reaches a possible Goal (i.e., *al-maaʔ-**a*** 'the-water-Acc') and agrees with it; consequently, the DP *al-maaʔ-a* receives valuation for its unvalued Case feature (i.e., Accusative), and the *v*-V Probe receives valuation for its unvalued φ-features. Similarly, the Nom Case on the subject for the Internal Conjunct *al-walad-u* 'the boy-Nom' is an outcome of an Agree relation between the C-T Probe and this DP. (Notice that the derivation for the External Conjunct proceeds in the same way as that of the Internal Conjunct).

The verbs in both Conjuncts raise to *v* and then to T to maintain the VSO order in MSA (see, Musabhien, 2005; Soltan, 2006, 2007, for a similar conclusion). As to where the verb *ʔakala* 'ate' in the Internal Conjunct in example (73) gets deleted, I assume that once it receives valuation for its unvalued features, it raises to *v* and then to T, where it can get deleted. (Note that later in the discussion, it will be shown that this kind of deletion is licensed).

For the shared subject coordination in (74), repeated here as (76), I will propose (77):

(76) ḍaraba Ali-un al-walad-a wa ~~ḍaraba~~ ~~Ali-un~~ al-bint-a
hit(3ms) Ali-Nom Def-boy-Acc and ~~hit(3ms)~~ ~~Ali-Nom~~/*pro* Def-girl-Acc
'Ali hit the boy and the girl'

(77)



The derivation for (76) proceeds as that of example (72) above, and the subject for the Internal Conjunct *Ali/pro* receives valuation for its [*u*Case] feature through Agree with the C-T probe within the Internal Conjunct.

In the next subsection, I will discuss how deletion is licensed in MSA Gapping constructions. It will be shown that an unvalued E-Feature on the Conj head of ConjP interacts with a matching Goal which bears, in addition to valued φ-features and unvalued Case, a non-F-marked (i.e., given or non-contrastive) feature.

A. Licensing deletion

Thus far, it has been shown that every elided element in the Internal Conjunct has an identical antecedent in the External Conjunct. Merchant (2001) states that an expression is *Given* only when it has a "salient antecedent" (p. 31), and being Given, that element becomes subject to deletion. Merchant uses a focus condition on VP-Ellipsis, which is based on the E-Givenness notion:

(78) A VP α can be deleted only if α is e-**GIVEN.** (Merchant, 2001, p. 26)

(78) entails that deletion targets elements which are not F-marked (i.e., not focused), and the deleted element(s) can be recovered under identity with their antecedent(s).

Merchant (2001, 2004) argues for a formal feature [E] on C[(18)] which licenses deletion of the complement of C (in sluicing constructions). In the following lines, I will adopt the core idea of Merchant's argument, but will make some additional assumptions. Specifically, I will present a hybrid analysis which is based on semantic (identity licensing condition) and syntactic assumptions:

(a) Following (Aelbrecht, 2010; Erschler, 2018; Merchant, 2001), I will assume that there is an E-feature which licenses deletion of

(18) In addition to the syntactic features of [+wh] and [+Q] on the C head.

Given elements in the Internal Conjuncts. In other words, if there is a Given element with a salient antecedent in the External Conjunct, then it gets deleted in the Internal Conjunct. By the same token, an F-marked element (i.e., contrastive or non-Given) will be immune to deletion.

(b) I will further assume that this E-feature is borne by the Conj head. This feature targets any Given (or non-F-marked elements, including DPs or PPs[19]). This E-feature interplays/interacts with another feature (focused feature) on contrastive or new elements; that is, the head Conj (bearing the E-feature) probes (as in Chomsky's FI model of Agree) for Goals in order to receive valuation.

(c) The E-feature is an *uninterpretable* and as such it requires valuation through Agree with matching *interpretable, non-F-marked* feature value on targeted elements.

(d) Agree succeeds when the E-feature on Conj receives valuation, and consequently the non-F-marked[20] (i.e., Given) element gets deleted.

Inspired by Aelbrecht (2010) and Erschler (2018), I will take the non-pronouncement (deletion) as an outcome of Agree between the E-feature and its matching Goals[21]. I divert; however, from Erschler and

(19) Notice that the idea of F-Markedness was first introduced for DPs, here I will extend the idea to verbs and other syntactic (deletable) elements (e.g., PPs, APs, etc.).

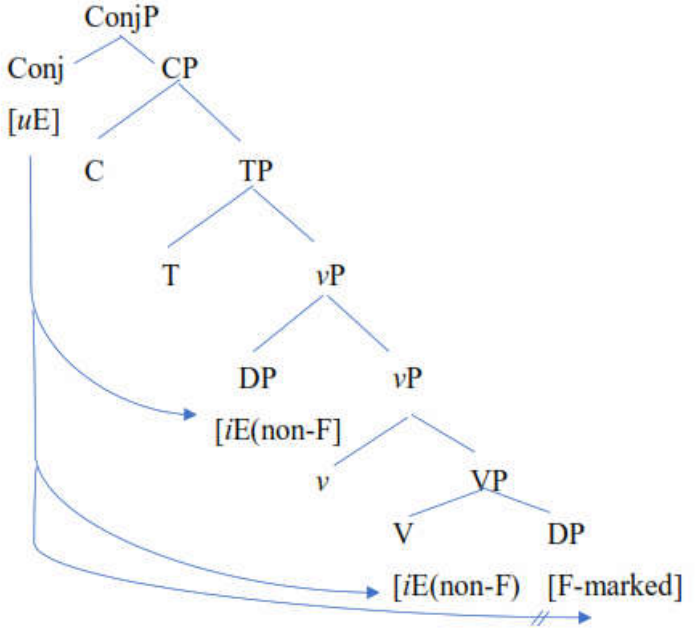
(20) If deletion occurs at PF level, then it cannot affect F-marked material. Reich (2007, p. 472-473) highlights this as a rule constraining verb deletion. With respect to VP-Ellipsis, Reich implies that if the object is F-marked (i.e., not Given), then the F-markedness of this object may withstand deletion.
a. Ralph likes cats and Mike [vp ~~likes~~ [dp dogs]f]
So, *dogs* is F-marked, and thus cannot be deleted because it cannot be recovered from the context.
b. *Ralph likes cats and Mike

(21) Merchant (2004) proposes similar argument for *stripping*, where there is an uninterpretable feature (*u*Conj) with which the head hosting the E-feature agrees.

argue that deletion targets the head bearing *interpretable* value for E-feature only, but not its complement. (Bacskar-Atkari (2018) argues for a similar conclusion; specifically, deletion in VP-Ellipsis targets the head verb only).

Consider the following configuration where the head Conj bearing *uninterpretable [E] feature* probes for *interpretable, non-F-marked feature value* on elements in its probing domain. This should allow the E-feature to Agree with matching element(s), thus causing deletion of such element(s):

(79)



Based on this scenario, the *uninterpretable* feature on Conj [*u*E] probes for elements which could value this feature. The subject DP, which bears an *interpretable* E-feature (in addition to syntactic [*i*φ] and [*u*Case] features) can value this feature. Notice that to be able to value this feature, the element must also be non-F-marked (i.e., it must be Given and must have an antecedent). Notice that the elided elements undergo the usual syntactic operations (i.e., Case and φ-valuation) before elision applies. This kind of Agree can be extended to verbs (and

other elements) provided that they can value the [*u*E] on Conj, as illustrated in (79).

It should be highlighted here that the Conj head is able to Probe more than one possible Goal. Hiraiwa (2001) argues for a feature [+multiple] which allows a probing head to probe multiple goals simultaneously; thus, it is plausible that Conj could bear this feature in addition to the *u*E feature.

It should be noted here that only the head element bearing (*i*E) feature, which must also be non-F-marked, is the only element to be subject to deletion (cf. Erschler, 2018, where the complement of the head bearing matching *interpretable feature* is deleted). Notice further that there is no agreement between the Conj head and the DP in the object position since this DP is F-marked (i.e., does not bear an *interpretable* E-feature).

This analysis differs from other analyses in various points: (a) it does not call for a distinctive, tertiary branching; instead, it argues for a binary branching analysis with a Conj head of ConjP is the conjunction and the Internal Conjunct is its complement. (b) Every conjunct is essentially a CP in itself. (c) The Conj head bears an *uninterpretable* E-feature which licenses deletion of its matching goal(s).

VII. Conclusion:

This article has presented an Agree-based analysis for Gapping in MSA. The analysis argues for a hybrid syntactic as well as semantic explanation for Gapping. It specifically argues that every Conjunct in a coordination structure is a full CP, and the conjunction is a head of a ConjP. The proposed analysis argues, following Merchant (2001, among others) that deletion in Gapping is licensed by an E-feature, which is borne by the Conj head. The E-feature interplays with focus marked elements, in the sense that only F-marked elements within the probing domain of C-T should not be subject to deletion.

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Appendix (1)

Abbreviations			
1	First Person	Gen	Genitive Case
2	Second Person	IMP	Imperfective Verb
3	Third Person	JA	Jordanian Arabic
Acc	Accusative Case	LA	Libyan Arabic
Asp	Aspectual	LF	Logical Form
AP	Adjective Phrase	M.	Masculine
ATB	Across-the-Board	MSA	Modern Standard Arabic
Conj	Conjunction head	Nom	Nominative Case
ConjP	Conjunction Phrase	NP	Noun Phrase
CP	Complementizer Phrase	PF	Phonological Form
CSC	Coordinate Structure Constraint	PP	Preposition Phrase
Def	Definite Article	Pred	Predicative
DP	Determiner Phrase	PredP	Predicative Phrase
E-Feature	Ellipsis Feature	S.	Singular
F.	Feminine	TP	Tense Phrase
FI	Feature-Inheritance	VP	Verb Phrase
Foc	Focus Head	VP-Ellipsis	Verb Phrase Ellipsis
FocP	Focus Phrase	*v*P	Functional/phasal Phrase

* * *

Appendix (2)

Phonemic transcription	
Symbol	**Transcription**
ʔ	glottal stop
b	voiced bilabial stop
t	voiceless dental fricative
θ	voiceless interdental fricative
j	voiced palatal fricative/affricate
ħ	voiceless pharyngeal fricative
x	voiceless velar fricative
d	voiceless alveolar stop
ð	voiced interdental fricative
r	voiced alveolar flap
z	voiced alveolar fricative
s	voiceless alveolar fricative
Š	voiceless palatal fricative
ṣ	voiceless alveolar fricative (emphatic)
ḍ	voiced alveolar stop (emphatic)
ṭ	voiceless alveolar fricative (emphatic)
ð̣	voiced interdental fricative (emphatic)
ʕ	voiced pharyngeal fricative
ɣ	voiced velar fricative
f	voiceless labiodental fricative
q	voiced uvular stop
k	voiceless velar stop
l	voiced alveolar lateral
m	voiced bilabial nasal
n	voiced alveolar nasal
h	voiceless glottal fricative
w	voiced labial glide
y	voiced palatal glide

Vowels		
Short	**Long**	**Description**
a	aa	central open
i	ii	front closed
u	uu	back closed rounded