Floating Quantifiers are Autonomous Phrases: A Movement Analysis

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Abstract

Q-float is a phenomenon in which a quantifier is separated from the nominal it associates with (*The cookies have all been eaten up!*). The phenomenon has received two major analyses: stranding and adjunction. The stranding analysis argues that the associate moves leftward out of a complex constituent that contains both it and the floating quantifier. The adjunction analysis considers floating quantifiers to be adverbial adjuncts. This paper investigates Q-float in Arabic and shows that neither of the existing accounts perfectly captures the facts. Adopting Ott's (2012, 2015) analysis of split topics and Q-float in German, the paper proposes that in Arabic, a floating quantifier and its associate are merged together in a particular syntactic position as a set of autonomous phrases; the associate moves out of the set to allow the set to be labeled and integrated in the structure. It will be shown that this labeling analysis captures many of the peculiarities of Q-float, among which are two apparently conflicting facts: the locality restrictions on floating quantifiers and, in many cases, the impossibility for the floating quantifier and the associate to have formed a continuous constituent at any stage of the derivation. The facts and analysis presented contribute to the debate on whether floating quantifiers mark the positions of lower copies of displaced nominals (NP traces in pre-minimalist terms), providing an argument that, at least for Arabic, the answer is yes. It also provides additional support for the Labeling framework that emerged from Chomsky (2013) and related work.

Keywords: quantifier float, movement, symmetric merge, labeling, construct state, Arabic

1 Introduction

Quantifier float (Q-float) occurs when a quantifier is separated from its associate nominal, as has been first observed by at least Postal (1974) and discussed by much later work (e.g., Kayne 1975, Fiengo and Lasnik 1976, Sportiche 1988, Shlonsky 1991, Bobaljik 1995, Doetjes 1997, Benmamoun 1999, McCloskey 2000, Bobaljik 2003, Bošković 2004, Fitzpatrick 2006, Spector 2009, Jenks 2013, Lacerda 2016, Zyman 2017, among others). The example in (1b) is representative:

(1) (Zyman 2017, 2, (1))

a. All the walruses are painting murals.

b. The walruses are all painting murals.

Different accounts were offered to explain the Q-float phenomenon. One account, *the movement/stranding account*, argues that Q-float results from a leftward movement of the associate nominal out of a complex constituent that contains both it and the quantifier (Giusti 1990, Shlonsky 1991, Merchant 1996, Cinque 1999, McCloskey 2000, Zyman 2017, among others). Another account is the *adverbial/adjunct analysis* which simply treats FQs as adverbial elements that semantically modify the predicates they combine with, or that modify their associate nominals (Kayne 1975, Dowty and Brodie 1984, Miyagawa 1989, Baltin 1995, Bobaljik 1995, Torrego 1996, Brisson 1998, Benmamoun 1999, Reed 2010, and others). A more recent analysis, a *hybrid analysis*, argues that in some languages, both stranding and adverbial modification are available (e.g., Fitzpatrick 2006).

This paper investigates Q-float in Modern Standard Arabic (and related languages like Hebrew), and presents empirical facts that argue in favor of a movement account such as the one proposed by Ott (2011, 2012, 2015) for split topicalization and Q-float in German. This analysis does not involve stranding of a floating quantifier in the strict sense. Rather, the FQ and its associate are merged together in a particular syntactic position as a set of autonomous phrases, where a member of the set (the associate) moves to allow the set to be labeled and integrated into the structure. This means that although the associate and the quantifier are in a movement dependency, they have not formed a continuous constituent at any stage of the derivation (see section 4 for a definition of *a continuous constituent*). I will show that the analysis captures many of the peculiarities of Q-float in natural languages in general and in Arabic specifically. Also, if the analysis is in the right direction, it provides support for the Labeling framework that emerged from Chomsky (2013) and related work.

I begin by presenting the facts of Q-float in Arabic in section 2, many of which have not been documented before, as far as I know. In section 3, a brief critique of previous accounts will be presented, showing that they do not capture all the facts of Q-float in Arabic. In section 4, I present an analysis of the facts, adopting the assumptions and analysis of split topicalization and Q-float in German proposed by Ott (2012, 2015) and show that this analysis solves many of the puzzles of Q-float in Arabic. Section 5 is a conclusion.

2 Quantifier Float in Arabic: The Facts

This section presents a description of Q-float in Arabic. The description includes the nature of elements that may float, the distribution of these elements, the restrictions on their distribution, and case matching and phi agreement between floating elements and their associates. Unless indicated otherwise, the variety of Arabic discussed is Modern Standard Arabic. All the Arabic examples were confirmed with native speakers.

2.1 Which Elements May Float?

Languages differ in which quantifiers may participate in Q-float construction. In Standard English[1], for instance, only universal quantifiers float (*all*, *both*, and *each*), while generalized quantifiers (e.g., *half*) or numerals may not:

(2) (Reed 2010, 1737, (1))

a. We are all becoming increasingly aware of climate change.

b. The protestors were both yelling/arrested/angry/lawyers.

c. The patients with food poisoning had each eaten at Joe's Diner.

(3) a. * Children were half playing in the backyard. (cf. *Half of the children were playing in the backyard.*)

[1]Q-float in the other varieties of English differ from Q-float in Standard English in many ways (see McCloskey 2000 and Henry 2012 for West Ulster English and Tilleson 2018 for Upper Midwest Dialect of English); thus, unless indicated otherwise, the variety of English to be discussed in the paper is Standard English.

b. * Children were three playing in the backyard. (cf. *Three children were playing in the backyard.*)

In contrast, a language like Japanese allows numerals to float (Miyagawa 1989):

(4) Gakusei ga kyoo 3-nin kita.
students NOM today 3-CL came.
'Three students came today. (Japanese)

As for Arabic, a range of elements may float, among which are universal quantifiers, such as *kull*, *jamiiʕ*, and *kaafah*, which are all equivalent to English *all*, and *kila* 'both':

(5) a. kull-u atˤ-tˤullaab-i qaddam-u waraqat-an baħθiyya-tan.
all-NOM the-students-GEN submit-3M.PL paper-ACC research-ACC
'All students submitted a research paper.'

b. atˤ-tˤullaab-u qaddam-u kull-u=hum waraqat-an baħθiyya-tan.
the-students-NOM submit-3M.PL all-NOM=3M.PL paper-ACC research-ACC
'The students all submitted a research paper.'

(6) a. jamiiʕ-u al-muatˤin-iina sa-yusharik-uuna fi al-intixabaat-i.
all-NOM the-citizen-3M.PL.GEN FUT-participate-3M.PL in the-elections-GEN
'All citizens will participate in the elections.'

b. al-muatˤin-uuna sa-yusharik-uuna fi al-intixabaat-i jamiiʕ-u=hum.
the-citizen-3M.PL.NOM FUT-participate-3M.PL in the-elections-GEN all-NOM=3M.PL
'The citizens will all participate in the elections.'

(7) a. kaafat-u atˤ-tˤullaab-i qaraʔ-u kitaab-an.
all-NOM the-students-GEN read-3M.PL book-ACC
'All the students read a book.'

b. atˤ-tˤullaab-u qaraʔ-u kitaab-an kaafat-u=hum.
the-students-NOM read-3M.PL book-ACC all-NOM=3M.PL
'The students all read a book.'

(8) a. kila ad-dawla-tayni qarrara-taa ʔan tuʕlin-aa
both.NOM the-country-3F.DU.GEN decided-3F.DU to announce-3F.DU
al-intixabaat-i.
the-elections-ACC
'Both countries decided to announce the (beginning of) elections.'

b. ad-dawla-taani qarrara-ta kila=huma ʔan tuʕlin-aa
the-country-3DU.NOM decided-3F.DU both.NOM=3F.DU to announce-3F.DU
al-intixabaat-i.
the-elections-ACC
‘The countries both decided to announce (the beginning of) the elections.’

Additionally, generalized quantifiers like *baʕdˤ* ‘some’ and *aħad* ‘one’ may float:

(9) a. baʕdˤ-u al-mushaarik-iina fi musabaqat-i al-kitaabat-i
some-NOM the-participants-3M.PL.GEN in competition-GEN the-writing-GEN
atˤfaal-un.
children-NOM
‘Some of the participants in the writing competition were children.’

b. al-mushaarik-uuna fi musabaqat-i al-kitaabat-i baʕdˤ-u=hum
the-participant-3M.PL.NOM in competition-GEN the-writing-GEN some-NOM=3M.PL
atˤfaal-un.
children-NOM
‘The participants in the writing competition, some of them were children.’

(10) a. aħad-u at-tamaaθiil-i suriq-a mina al-mutħaf-i.
one-NOM the-statues-GEN steal.PASS.PAST-3M.SG from the-museum-GEN
‘One of the statues was stolen from the museum.’

b. at-tamaaθiil-u suriq-a aħad-u=ha mina al-mutħaf-i.
the-statues-NOM steal.PASS.PAST-3M.SG one-NOM=3F.SG from the-museum-GEN
‘The statues, one of them was stolen from the museum.’[2]

Other elements that may float are numerals, a fact that has not been documented before, as far as I know:

(11) a. ʔarbaʕat-u al-mudarris-iina ʔalqa-u muħaadarat-an.
four-NOM the-teacher-3M.PL.GEN gave-3M.PL lecture-ACC
‘Four teachers gave a lecture.’

b. al-mudarris-uuna ʔalqa-u ʔarbaʕat-u=hum muħaadarat-an.
the-teacher-3M.PL.NOM gave-3M.PL four-NOM=3M.PL lecture-ACC
‘The teachers, four of them gave a lecture.’

(12) a. θalaaθat-u al-laaʕib-iina usˤiib-u fi-l-malʕab-i.
three-NOM the-player-M.PL.GEN injure.PASS.PAST-3M.PL in-the-field-GEN
‘Three players were injured in the field.’

[2]Note that the verb agrees with the postverbal phrase; the preverbal phrase is a topic.

b. al-laaʕib-uuna us^ʕiib-u θalaaθat-u=hum fi-l-malʕab-i.
the-player-M.PL.NOM injure.PASS.PAST-3M.PL three-NOM=3M.PL in-the-field-GEN
'The players, three of them were injured in the field.'

In addition, Arabic Q-float is not restricted to quantifiers and numerals. Construct state nominals, in which two nominals are annexed to each other, may be split into two nominals and one of them becomes an associate of the other:[3]

(13) a. nisˁf-u al-jumhuur-i ɣaadar-a al-masraħ-a qabla nihaayat-i
half-NOM the-audience-GEN left-3M.SG the-theater-ACC before end-GEN
al-masraħiyyat-i.
the-play-GEN
'Half of the audience left before the end of the play.'

b. al-jumhuur-u ɣaadar-a nisˁf-u=hu al-masraħ-a qabla nihaayat-i
the-audience-NOM left-3M.SG half-NOM=3M.PL the-theater-ACC before end-GEN
al-masraħiyyat-i.
the-play-GEN
'The audience, half of them left before the end of the play.'

(14) a. yad-u ʕali-in juriħ-at fi ħaadiθ-in muʔsif-in.
hand-NOM Ali-GEN injure.PASS.PAST-3F.SG in accident-GEN tragic-GEN
'Ali's hand was injured in a tragic accident.'

b. ʕali-un juriħ-a fi ħaadiθ-in muʔsif-in yad-u=hu
ʕali-NOM injure.PASS.PAST-3M.SG in accident-GEN tragic-GEN hand-NOM=3M.SG
wa baʕdˁ-u ʔjzaaʔ-in ʔuxraa min jism-i=hi.
and some-NOM parts-GEN other of body-GEN=3M.SG
'Ali was injured in a tragic accident, his hand and some other parts of his body.'

(15) a. mujawharaat-u Muna fuqid-at al-shahra al-madˁi.
jewelry-NOM Muna.GEN lose.PASS.PAST-3F.PL the-month the-last
'Muna's Jewelry was lost last month.'

[3] An anonymous reviewer argues that the associate phrases in these cases are rather base-generated in the left periphery, and therefore should be analyzed as broad subjects (e.g., Alexopoulou *et al.* 2004, Doron and Heycock 2010) or as hanging topics. This cannot be correct for two reasons. First, these phrases show connectivity effects to the lower clause (see sections 2.4 and 3). Second, they must match in case with the floating elements they associate with regardless of the case of these elements. Hanging topics or broad subjects, on the other hand, are invariably marked with NOMINATIVE case (Alexopoulou *et al.* 2004). See also Landau (2009, 2011) who argues convincingly that what the literature claims to be broad subjects in Hebrew (and presumably Arabic) are no more than Clitic Left Dislocated phrases.

b. Muna fuqid-at mujawharaat-u=ha al-shahra al-madˤi.
Muna.NOM lose.PASS.PAST-3F.SG jewelry-NOM=3F.SG the-month the-last
'Muna, her Jewelry was lost last month.'

It appears that what all the floating elements above share is that they hold a subset-superset, a part-whole, or a possessee-possessor relationship to the associate nominal. More accurately, floating phenomenon seems to be restricted to construct states, whether they involve a quantifier plus a nominal or two nominals. As will be argued in section 4, the more accurate characterization of the contexts that allow floating is those that involve an argument-predicate relationship (Ott 2015). Note that floating does not simply apply to any two adjacent phrases in Arabic. For instance, an ordinary adjective may not float, as shown by the example below:

(16) a. ishtara-a ʕali-un majallat-in ʕilmiyyat-an mina al-maktaba-ti.
bought-3M.SG Ali-NOM journal-ACC scientific-ACC from the-library-GEN
'Ali bought a scientific journal from the library.'

b. *majallat-in ishtara-a ʕali-un ʕilmiyyat-an mina al-maktaba-ti.
journal-ACC bought-3M.SG Ali-NOM scientific-ACC from the-library-GEN
'A scientific journal, Ali bought from the library.'

Thus, a range of elements exhibit floating behavior in Arabic: universal quantifiers, generalized quantifiers, numerals, and a class of nouns. *Q-float* is, thus, not the accurate term to describe the floating phenomenon in Arabic because the phenomenon is not specific to quantifiers. I will continue to use this term throughout the paper for convenience, however.

2.2 Distribution of Floating Elements

Arabic FQs may appear where nominals may appear (NP trace positions in pre-minimalist terms), such as the subject, direct object, indirect object (or as an object in a double accusative construction), and prepositional complement positions. We have seen numerous examples of FQs occurring in the subject position above. Examples of the other positions follow:

(17) *Direct Object*

a. qaraʔ-a ʕali-un jamiiʕ-a al-kutub-i fi-sˤ-sˤayf-i.
read-3M.SG Ali-NOM all-ACC the-books-GEN in-the-summer-GEN
'Ali read all the books in the summer.'

b. qaraʔ-a ʕali-un al-kutub-a jamiiʕ-a=ha fi-sˤ-sˤayf-i.
read-3M.SG Ali-NOM the-books-ACC all-ACC=3F.PL in-the-summer-GEN
'Ali read the books all in the summer.'

(18) *Object in a Double Accusative Construction*[4]

a. darras-a al-muʕalim-u jamiiʕ-a atˤ-tˤullaab-i al-qasiidat-a.
taught-3M.SG the-teacher-NOM all-ACC the-students-GEN the-poem-ACC
'The teacher taught the poem to all the students .'

b. darras-a al-muʕalim-u atˤ-tˤullaab-a jamiiʕ-a=hum al-qasiidat-a.
taught-3M.SG the-teacher-NOM the-students-ACC all-ACC=3M.PL the-poem-ACC
'The teacher taught the students all, the poem.'

(19) *Prepositional Complement*

a. ʔsˤbaħ-a al-internet-tu mutaaħ-an li-kull-i al-manaazil-i fi ʕamman-a.
became-3M.SG the-internet-NOM available-ACC to-all-GEN the-houses-GEN in Amman-GEN
'The internet has become available to all the houses in Amman.'

b. ʔsˤbaħ-a al-internet-tu mutaaħ-an li-l-manaazil-i fi ʕamman-a kull-i=ha.
became-3M.SG the-internet-NOM available-ACC to-the-houses-GEN in Amman-GEN all-GEN=3F.PL
'The internet has become available to all the houses in Amman.'

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[4] A reviewer asks about the floating possibilities in examples with two quantifiers, like (1). As shown in (2), there are three possibilities of floating in such examples.

(1) al-muʔallim-u darras-a kull-a atˤ-tˤullaab-i kull-a al-qasˤaʔid-i.
the-teacher-NOM taught-3M.SG all-ACC the-students-GEN all-ACC the-poems-GEN
'The teacher taught all the students all the poems.'

(2) a. al-muʔallim-u darras-a atˤ-tˤullaab-a kull-a=hum kull-a al-qasˤaʔid-i.
the-teacher-NOM taught-3M.SG the-students-ACC all-ACC=3M.PL all-ACC the-poems-GEN
'The teacher taught the students all, all the poems.' (one instance of floating)

b. al-muʔallim-u darras-a kull-a atˤ-tˤullaab-i al-qasˤaʔid-a kull-a=ha.
the-teacher-NOM taught-3M.SG all-ACC the-students-GEN the-poems-ACC all-ACC=3F.PL
'The teacher taught all the students all of the poems.' (one instance of floating)

c. al-muʔallim-u darras-a atˤ-tˤullaab-a kull-a=hum al-qasˤaʔid-a kull-a=ha.
the-teacher-NOM taught-3M.SG the-students-ACC all-ACC=3M.PL the-poems-ACC all-ACC=3F.PL
'The teacher taught the students all, all of the poems.' (two instances of floating)

In addition, Arabic FQs appear in positions like the complement position of unaccusative and passive verbs (20) (Miyagawa 1989 shows that Japanese allows floating numerals in these positions, as well): [5]

(20) a. atˤ-tˤullaab-u wasˤal-u kull-u-hum.
the-students-NOM arrive-3M.PL all-NOM=3M.PL
'All the students arrived.'

b. atˤ-tˤullaab-u iʕtuqil-u kull-u-hum.
the-students-NOM arrest.PASS.PAST-3M.PL all-NOM-3M.PL
'All the students were arrested.'

c. Salma ta-krahu atˤ-tˤullaab-a kull-a-hum.
Salma 3F.SG-hate the-students-ACC all-ACC-3M.PL
'Salma hates all the students.'

In contrast, FQs are banned in these positions in some languages like English and French (Sportiche 1988, Authier 1991, Bobaljik 1995, McCloskey 2000, Bošković 2004, and others):

(21) (Bošković 2004, 682, (3))

a. * The students arrived all.

b. * The students were arrested all.

c. * Mary hates the students all.

Furthermore, Arabic FQs appear sentence finally.[6] This is not possible in English and French, for instance, which ban FQs in this position, and allow them only if followed by PP adjuncts or secondary predicates (e.g., Fiengo and Lasnik 1976, Maling 1976, Bobaljik 1995):

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[5] One might ask how we can be sure that these quantifiers have been stranded in a direct object position, given that they could be in a higher position if the verb has been raised. Other examples show that FQs may appear in the same position even when the main verb cannot have moved (to T, assuming that in Arabic the highest verb must move to T to check its features). In (1), the auxiliary *kaan* is assumed to occupy T, so it is impossible for the verb to have moved over the FQ to T:

(1) atˤ-tˤullaab-u kaan-u qad iʕtuqilu kull-u-hum.
the-students-NOM was-3M.PL PRF arrest.PASS.3M.PL all-NOM-3M.PL
'The students had all been arrested.'

[6] One might wonder whether the FQs occurring sentence-finally can be analyzed as afterthoughts. This is unlikely, however, because all the sentence-final FQs are prosodically integrated into the preceding clause.

(22) ʔali-un wa Salim-un wa Saʕiid-un daxal-u al-maqha kull-u=hum.
Ali-NOM and Salim-NOM and Said-NOM enter-3M.PL the-café all-NOM=3M.PL
'Ali, Salim, and Said all entered the café.'

(23) (Bobaljik 1995, 231,(32))

a. Larry, Sally and Darryl came into the café *all.

b. Larry, Sally and Darryl came into the café all [at the same time].

c. Larry, Sally and Darryl came into the café all [very tired].

Additionally, Arabic differs from English (24) (and French) in that Arabic FQs may associate with elements in $\overline{\text{A}}$-positions (25–26) (note that several examples of associates occupying topic positions were already presented above).[7]

(24) *What did John all buy? (=What all did John buy?) (Fitzpatrick 2006, 23, (14))

(25) an-niqaatˤ-a al-ħuduudiyya-ta maʕa al-maksiik-i zaar-a
the-points-ACC the-border-ACC with the-Mexico-GEN, visited-3M.SG
ar-raʔiis-u baʕdˤ-a=ha yawma aliθnayyni.
the-president-NOM some-ACC=3F.PL day Monday
'The Mexican border checkpoints, the president visited some of on Monday.'

(26) ʔayy-a kutub-in qaraʔ-a ʕali-un jamiiʕ-a=ha?
which-ACC books-GEN read-3M.SG Ali-NOM all-ACC=3F.PL
'Which books did Ali read all of?'

That Arabic FQs are not restricted in distribution and that they may associate with A and $\overline{\text{A}}$ positions make the phenomenon more like movement. As will be shown in section 4, these facts, among others, argue for there being a movement dependency between a FQ and its associate.

2.3 Phi Agreement and Case Matching

Arabic FQs agree with their associates in phi features. A FQ must agree with its associate in person number and gender (Shlonsky 1991, Benmamoun 1999). This agreement takes the form of a clitic appearing on the FQ as proposed by Shlonsky (1991), as can be seen in all of the examples above, like (5b), repeated below:

[7] See McCloskey 2000 who shows that West Ulster English allows FQs to associate with nominals in $\overline{\text{A}}$-positions.

(27) atˁ-tˁullaab-u qaddam-u kull-u=hum waraqat-an baħθiyya-tan.
the-students-NOM submit-3M.PL all-NOM=3M.PL paper-ACC research-ACC
'The students all submitted a research paper.'

Note that the sentence is ungrammatical without the clitic:

(28) *atˁ-tˁullaab-u qaddam-u kull-u waraqat-an baħθiyya-tan.
the-students-NOM submit-3M.PL all-NOM paper-ACC research-ACC
'The students all submitted a research paper.'

In addition, Arabic FQs must agree with their associate phrases in case (Shlonsky 1991, Benmamoun 1999). In (5b), *kull* and *atˁ-tˁullaab-u* have a matching case, namely NOMINATIVE; in (29a), both have ACCUSATIVE case; in (29b), both are assigned GENITIVE case. Compare these examples to those that do not involve Q-float like (5a) above. In those cases, the phrase invariably gets GENITIVE case (examples 29a and 29b are adapted from Benmamoun 1999, 631, (25b), (25c)).

(29) a. raʔay-tu atˁ-tˁullaab-a albaariħata kull-a=hum.
saw-1SG the-students-ACC yesterday all-ACC=3M.PL
'I saw all the students yesterday.'

b. minaħ-u atˁ-tˁullaab-i aθ-θalaaθat-i al-mutamayyiz-iina
scholarships-NOM the-students-GEN the-three-GEN the-distinguished-3M.PL.GEN
kull-i-him ʔuuqif-at.
all-GEN=3M.PL suspend.PASS.PAST-3F.PL
'The scholarships of all the three distinguished students were suspended.'

2.4 Locality Restrictions

Baltin (1978), Kayne (1981), Bobaljik (2003), and others note that the dependency between a FQ and its associate is similar to the one that holds between an anaphor and its antecedent. First, the FQ must be in the local domain of its associate NP.

(30) a. *There (had) all hung on the mantelpiece Portraits by Picasso. (Baltin 1978, 26)

b. *My friends$_i$ think that I have all$_i$ left. (Kayne 1981, 196)

This is the case in Arabic. Sentence (31) is ungrammatical under the reading in which 'all' associates with 'students':

(31) *atˤ-tˤullaab-u iʕtaqad-u ʔanna al-muʕallima-ta lann tadˤdaʕ-a
the-students-NOM thought-3M.PL COMP the-teacher.F.SG-ACC NEG put.IPFV-3F.SG
waajib-an ilikitroniyy-an jadiid-an kull-a=hum alʔarbiʕaʔa.
assignment-ACC electronic-ACC new-ACC all-NOM=3M.PL Wednesday
'*The students thought that the teacher will not post a new assignment online all on Wednesday.' (*all* associates with *students*)

Second, floating quantifiers must be c-commanded by their associates. Again, the same holds for Arabic FQs (Benmamoun 1999):

(32) *[A friend of [the students]] has all arrived.
Intended: 'A friend of all of the students has arrived.' (Fitzpatrick 2006, 69, (87))

(33) a. *[ʔism-u [al-kuttaab-i]] kaana kull-u-hum mafquud-an.
[name-NOM [the-authors-GEN]] was all-NOM-3M.PL missing-ACC
'*The name of the authors was all missing.'
Intended: 'The name of all of the authors was missing.'

b. *ʔism-u kaana kull-u al-kuttaab-i mafquad-an.
name-NOM was all-NOM the-authors-GEN missing-ACC

Third, a FQ and its associate cannot be separated by the boundary of a movement island. All the examples below are ungrammatical because the displaced nominals are associated with FQs that appear inside movement islands.

(34) *ʔayy-a ʔaflaam-in saʔal-a ʕali-un limaaθaa Salma lamm t-uħibba
which-ACC movies-GEN ask-3M.SG Ali-NOM why Salma.NOM NEG 3F.SG-liked
nisˤf-a=ha?
half-NOM=3F.PL
'Which movies did Ali Ask why Salma did not like half of?' (*WH*-island constraint)

(35) *al-axbaar-a al-hamma-ta, ʕali-un sˤaddaq-a iddiʕaaʔ-a Salma ʔanna
the-news-ACC the-important-ACC, Ali-NOM believed-3M.SG claim-ACC Salma COMP
Samiir-an sarrab-a kull-a=ha?
Samiir-ACC leaked-3M.SG all-ACC=3F.PL
'*The important news, Ali believed Salma's claim that Samiir leaked all of?' (complex NP constraint)

(36) *ʔayy-a kutub-in katab-at Salma risaalat-a=ha qabla ʔan
which-ACC books-GEN wrote-3F.SG Salma dissertation-ACC=3F.PL before COMP
taqraʔ-a kull-a=ha?
read-3F.SG all-ACC=3F.PL=3F.PL

'Which books had Salma written her (Ph.D.) dissertation before she read all of?' (adjunct island constraint)

Benmamoun (1999), however, claims that FQs may appear inside movement islands as in (37) from Moroccan Arabic:

(37) hadu lə-wlad$_i$ Ili mš-at [$_{island}$ qabəl ma-y-ži-w kull-hum$_i$]
these the-children that leave.PAST-3FS before NEG-3-come-P all-them
'These are the children that she left before meeting them all.'[8] (Benmamoun 1999, 628, (16)) (Moroccan Arabic)

I believe, nonetheless, that the FQ does not violate the island constraint in this example. It is more likely that the FQ associates with a null pronominal subject within the adjunct clause, which is in turn co-indexed with 'the children', in the higher clause. This is supported by the fact that a FQ associating with a subject does not require an overt subject (38a), but the one associating with an object does (38b).

(38) a. jaaʔ-u ʔila al-ħafl-i kull-u-hum.
came-3M.PL to the-party-GEN all-NOM=3M.PL
'They all came to the party.'

b. *qaabal-tu fi-l-ħafl-i kull-a=hum.
met-1SG in-the-party-GEN all-ACC=3M.PL
'I met them all at the party.'

In order for a floating quantifier to associate with a nominal in the object position, an overt nominal is required, which can take the form of a pronominal clitic:

(39) qaabal-tu=hum fi-l-ħafl-i kull-a=hum.
met-1SG=3M.PL in-the-party-GEN all-ACC=3M.PL
'I met them all at the party.'

In the same way, a FQ associating with an object may appear inside an island only when a clitic appears in the object position (note that in the examples in (34)-(36), the floating quantifiers are object-oriented, thus they cannot associate with a local null pronominal):

[8] Benmamoun glosses *ma* as a negative marker here, but in fact it is not a negative marker in this example. This *Ma* is referred to as an extra/vacuous *ma* by prescriptivists, and it appears in various positions in Arabic sentences, especially after prepositions. Also, the idiomatic translation of the example is inaccurate. It should be 'These are the children that she had left before they all came'.

(40) *haaʔulaaʔi hum al-ʔawlad-u allaðiin saafar-a Sami qabla ʔan
these they the-boys-NOM that traveled-3M.SG Sami.NOM before COMP
y-ara kull-a=hum
3M.SG-see all-ACC=3M.PL
*These are the boys whom Sami had traveled before he saw all of.

(41) haaʔulaaʔi hum al-ʔawlaad-u allaðiin saafar-a Sami qabla ʔan
these they the-boys-NOM that travel-3M.SG Sami.NOM before COMP
y-ara=hum kull-a=hum
3M.SG-saw.=3M.PL all-ACC=3M.PL

There are two possible explanations of the contrast between (40) and (41). The first is that the clitic ameliorates the island violation (Aoun and Benmamoun 1998 refer to this as the *resumptive strategy*). The second is that the FQ associates with the pronominal clitic which is in turn co-indexed with the associate nominal, meaning that there is no island violation. Either of these possibilities leads to the same conclusion: FQs cannot violate islands.[9]

[9] As pointed out by an anonymous reviewer, there might be other conditions. In some languages like German, Q-float occurs with constructions that generally do not permit subextraction. For instance, Ott (2015) shows that German dative objects can be split by Q-float although subextraction from dative objects is impossible:

(1) (Ott 2015, 159, (5); 190, (85))

a. *Worüber$_i$ wurde schon $[_{DP}$ mehreren Büchern t_i] ein Preis verliehen?
about what was already [several books.DAT] a prize awarded

b. Den Freunden von Benni hat Caro beiden einen Kuchen gebacken.
the friends of Benni.DAT has Caro both.DAT a cake baked

(German)

This seems to be the case in Arabic as well. Although subextraction from indirect objects (in double accusative constructions) is ungrammatical (2a), a topicalized phrase can associate with a floating quantifier in indirect object position (2b):

(2) a. *maða$_i$ aʕtˤ-at Muna [atˤ-tˤullaab-a t_i] kutub-an?
what$_i$ gave-3F.SG Muna.NOM [the-students-ACC t_i] books-ACC
'*[Of What]$_i$ did Muna give [students t_i] (some) books? (cf. *Muna gave students of physics (some) books.*)

b. atˤ-tˤullaab-a aʕtˤ-at Muna nisˤf-a=hum kutub-an.
the-students-ACC gave-3F.SG Muna.NOM half-ACC-3M.PL books-ACC
'[The students]$_i$, Muna gave half of t_i (some) books.'

This provides evidence against analyzing Q-float as a case of subextraction as claimed by the proponents of the stranding analysis (see section 3).

2.5 Interim Summary

A detailed description of Q-float in Arabic was presented in this section. It was shown that a range of elements may participate in Q-float, not just quantifiers, a fact that has not been documented before, as far as I know. Also, unlike FQs in languages like English and French, Arabic FQs may appear where nominals normally appear (thematic positions or NP-trace positions in traditional terms), and they may associate with A- and $\overline{\text{A}}$-positions. FQs are also subject to locality restrictions as in many languages.

3 Remarks on Previous Accounts

Before presenting my analysis of Q-float in Arabic, a few remarks about previous accounts are in order. Two accounts have been proposed in the literature: the movement/stranding analysis and the adverbial/adjunct analysis. Proponents of the stranding analysis claim that Q-float results from leftward movement of the associate nominal away from the quantifier (Giusti 1990, Shlonsky 1991, Merchant 1996, Cinque 1999, McCloskey 2000, Zyman 2017, among others).[10] One major version of this analysis in the literature on Semitic languages like Arabic and Hebrew is Shlonsky (1991) in which it is proposed that Hebrew *kol* 'all' (and its Arabic equivalent) is a functional head that selects a DP complement. According to Shlonsky, building on Sportiche's (1988) movement analysis, Q-float is derived by moving a DP out of a QP, resulting in the quantifier being stranded, as illustrated in (43) for (42):

(42) Ha-yeladim medabrim sinit kul-am.
the-children speak Chinese all-3M.PL
'The children all speak Chinese.' (Shlonsky 1991, 170, (18a)) (Hebrew)

(43) (Shlonsky 1991, 169, (17); adapted)

[TP [DP ha-yeladim] . . . [QP *t* [Q' [Q kul-am] *t*]]]

Here the quantifier *kol* 'all' floats as a result of a leftward movement of *ha-yeladim* 'the children' through the specifier of QP. *Ha-yeladim* and *kol* enter into spec-head agreement, which is man-

[10]Earlier analyses assumed a rightward movement of floating quantifiers (e.g., Kayne 1975). I will not discuss this possibility here.

ifested by the agreement clitic *-am*. (Note that in Shlonsky's analysis, VP-internal subjects, are projected to the right. Presumably, in his analysis, all the other specifiers should project to the left.)

The stranding analysis has received much criticism. First, it does not capture the cases in which FQs may not appear in NP trace positions (positions of lower copies of displaced NPs), as with passive and unaccusative verbs (e.g., 21).[11] Second, the stranding analysis does not explain why in some languages FQs cannot be associated with $\overline{\text{A}}$-positions (e.g., 24). More particularly, as pointed out by Bobaljik (1995, 2003), Fitzpatrick (2006), and others, one problem for the stranding analysis is accounting for the anaphor-like locality restrictions on FQs in languages like English: a nominal which has undergone A-movement may be the associate to a floating quantifier, while a nominal that has undergone $\overline{\text{A}}$-movement may not. As pointed out by Bobaljik (2003), this is hard to explain under the stranding analysis given that well-attested stranding phenomena are not restricted to A-movement. As has been shown in section 2.2, the two criticisms outlined above are inapplicable to Arabic because Arabic allows FQs to appear in the object position of passives and unaccusatives, and allows FQs to associate with nominals occupying $\overline{\text{A}}$-positions.

There are other facts that argue strongly against a stranding analysis of Q-float. More particularly, in many cases, it is impossible for the associate and the FQ to have formed a continuous constituent at any stage of the derivation (see 4 for a definition of *a continuous constituent*), as pointed out by many (e.g., Sportiche 1988, Bobaljik 2003). This is true for Arabic and for languages like English and French:

(44) (Bobaljik 2003, (32); the bracketing in the b-example is mine)

a. These children have each (*of) read a different book.

b. [$_{QP}$ Each *(of) these children] has read a different book.

[11] Bošković (2004) addresses this argument and argues that quantifiers may not float in theta positions because this violates the ban on adjunction to theta positions (Chomsky 1986), assuming that a floating quantifier is adjoined to the associate nominal (Sportiche 1988, Benmamoun 1999). Rather, floating quantifiers are merged countercyclically. Assuming that FQs are adjoined to N is problematic from a semantic perspective, however (see Bobaljik 1995 for arguments along these lines). Also, recent literature reveals that countercyclic late merger should not be allowed (see Sportiche 2017 for arguments). What is important for the purposes of the current paper is that Bošković's generalization does apply to the Arabic facts: floating quantifiers do appear in theta positions (note that this is also true of Japanese floating numerals as shown by Miyagawa 1989, thus it is not a distributional fact that is specific to Arabic).

(45) (Doetjes 1997, 201)

a. Ces enfants ont chacun lu un livre différent.
these children have each read a book different
These children have each read a different book.

b. Chacun *(de) ces enfants a lu un livre différent.
each *(of) these children has read a book different
Each of these children has read a different book. (French)

(46) a. atˤ-tˤullaab-u daxal-u al-qaaʕa-ta kull-un ħasaba
the-students-NOM entered-3M.PL the-hall-ACC each-NOM according to
ʔism-i-hi.
name-GEN=3M.SG
'The students entered the hall each according to his name.'[12]

b. kull-un *(min) atˤ-tˤullaab-i daxal-u al-qaaʕa-ta ħasaba
each-NOM *(of) the-students-GEN entered-3M.PL the-hall-ACC according.to
ʔism-i=hi.
name-GEN=3M.SG
'Each of the students entered the hall according to his name.'

In each of the pairs above, the non-floating sentence requires a preposition ('of') between the quantifier and the nominal that follows it, a fact that is hard to explain under a stranding analysis.

Similarly, Arabic FQs may associate with a coordinate structure. Non-floating versions are grammatical only with a preposition:

(47) a. Sally wa Sarah wa Suzan ijtaz-na kull-u=hunna
Sally.NOM and Sarah.NOM and Suzan.NOM passed-3F.PL all-NOM=3F.PL
al-ixtibaar-a.
the-test-ACC
'Sally, Sarah, and Suzan all passed the test.'

b. kull-un *(min) Sally wa Sarah wa Suzan ijtaz-na al-ixtibaar-a.
all-NOM *(of) Sally.GEN and Sarah.GEN and Suzan.GEN passed-3F.PL the-test-ACC
'Sally, Sarah, and Suzan all passed the test.'

This is the case in English as shown by Bobaljik (2003) (note, however, that even with an intervening preposition, a quantifier cannot precede a coordinate phrase in English) :

[12] In Arabic, the word *kull* is used as a universal quantifier like *all* in English, and distributive quantifier like *each*.

(48) (Bobaljik 2003, 23)

a. Larry, Sally and Darryl have all come into the café.

b. ?*All (of) Larry, Sally and Darryl have come into the café.

Moreover, a FQ may associate with a quantified phrase, but a non-floating version is unavailable for this case:

(49) a. Some (of the) students might all have left in one car.

b. *All (of) some (of the) students might have left in one car.

(50) a. baʕdˤ-u atˤ-tˤullaab-i ɣab-u kull-u=hum ʕan al-imtiħaan-i.
some-NOM the-students-GEN was.absent-3M.PL all-NOM=3M.PL from the-exam-GEN
'Some students were all absent from the exam.'

b. *kull-u baʕdˤ-i atˤ-tˤullaab-i ɣab-u ʕan al-imtiħaan-i.
all-NOM some-GEN the-students-GEN was.absent-3M.PL from the-exam-GEN

Furthermore, and as shown in section 2.3, the best indication of the fact that a floating quantifier cannot have formed a continuous constituent with the associate is the fact that in floating sentences, the floating element and its associate must have matching case, whereas in non-floating sentences the associate invariably gets GENITIVE case. This indicates that floating and non-floating quantification are not derivational variants.[13]

[13] Further evidence that floating and non-floating constructions are not syntactically related comes from semantic scope. Dowty and Brodie (1984), McCawley (1988), Deprez (1994), Bobaljik (2003), Payne (2011), and others note that the scope of floating quantifiers (FQs) is restricted to their surface position, while the quantifiers that are part of DPs may undergo scope changing operations; thus, in (1b), in which Q-float has applied, the universal quantifier cannot outscope modality.

(1) (Bobaljik 2003, (46))

a. All the contestants could have won. $\Diamond > \forall,\ \forall > \Diamond$

b. The contestants could have all won. $\Diamond > \forall,\ *\forall > \Diamond$

Note, however, that there is a class of exceptions already noted by Dowty and Brodie (1984) and discussed in Bobaljik (2003): a floating quantifier can take scope under a following negation if negation immediately follows the finite auxiliary:

(2) The contestants all didn't win. $\forall >$ not, not $> \forall$ (Bobaljik 2003, (47))

All of the above facts lead to the conclusion that the stranding analysis does not explain all cases of Q-float. An associate does not move out of a constituent, stranding the quantifier. However, a number of facts still suggest that there is a movement dependency between a FQ and its associate: a FQ may associate with A- or $\overline{\text{A}}$-positions (25-26) and is sensitive to islands (34-36). In addition, a FQ shows reconstruction effects for binding conditions:

(51) sˁuwar-an *li-ʕali-in$_i$/nafsihi$_i$ lamm y-ara huwa$_i$ nisˁf-a=ha.
pictures.F-ACC of-Ali-GEN/himself NEG 3M.SG-see he half-ACC=3F.PL
'Pictures of *Ali$_i$/himself$_i$, he$_i$ didn't see half of.' (Binding Condition C)

(52) kitaab-ayni ʕan -*hu$_i$/nafsihi huwa$_i$ lamm ya-qraʔ kilay=hima.
book-DU.ACC about -him/himself he$_i$ NEG 3M.SG-read both.ACC=3M.DU
'Books about *him$_i$/himself$_i$, he$_i$ did not read both of.' (Binding Condition B)

It therefore seems that Q-float cannot result from movement of the associate out of a continuous constituent that includes it and the quantifier. It rather appears that the associate moves out of a projection that dominates both it and the quantifier. I will present an analysis, which I essentially adopt from Ott (2015), that reconciles these apparently conflicting facts in section 4.

The adverbial analysis, on the other hand, was proposed as an alternative to the movement analysis. Proponents of the adverbial analysis proposed that FQs are adverbial elements that semantically modify the predicates they combine with, or in some versions of the analysis, that modify their associate NPs (Kayne 1975, Dowty and Brodie 1984, Miyagawa 1989, Baltin 1995, Bobaljik 1995, Torrego 1996, Brisson 1998, Benmamoun 1999, among others). The majority of the arguments used to argue for the adverbial analysis were the same arguments that rendered the movement analysis problematic: FQs appear in positions that are not known to be thematic positions (NP trace positions), and FQs cannot appear in the object position of some verbs (e.g., passives) which are known to be thematic positions. As shown in section 2.2, these criticisms were mainly based on facts from English and French, and are inapplicable to Arabic.[14]

The conclusion that I reach, then, is that existing accounts of Q-float do not explain the Arabic

If floating constructions were derived from non-floating ones, it would be hard to explain why the two constructions exhibit different scopal interactions.

[14]A third analysis that has been proposed more recently is a hybrid analysis (e.g., Fitzpatrick 2006). This analysis argues that in some languages both stranding and adverbial modification are possible analyses of Q-float. The analysis would explain the cases in which movement is impossible, and still would account for the movement-like properties of Q-float, like the fact that Arabic FQs may be associated with both A and $\overline{\text{A}}$ positions.

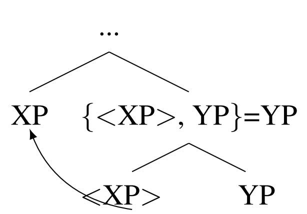
facts perfectly. The distribution and the nature of the elements that float indicate that FQs cannot have formed continuous constituents with their associates at any stage of the derivation, nor are they projected as adverbial adjuncts.

4 Analysis

In this section, adopting Ott's (2011, (2012), 2015) analysis of split topics and Q-float constructions in German, I propose that in Arabic, a FQ and its associate are merged together in a particular syntactic position as a symmetric set of autonomous phrases, and the set must be asymmetrized to allow the set to be labeled, which is crucial for semantic convergence (Chomsky 2013).

Ott's analysis rests on a number of assumptions. First, he assumes that a FQ and its associate hold a semantic relation of a predicate and argument respectively. Second, as argued by Chomsky (2004, 2008, 2007, 2013), the operation *(symmetric) merge* combines two syntactic objects into an unordered set (assuming that linear order is computed in the post-syntax). This set must be labeled in order for the constructed unit to be syntactically and semantically integrated into the surrounding structure. According to Chomsky, the label of the set is identified via a simple algorithm which identifies the head through a specific feature of that head. To put it simply, the label of {A, B} is A if A is a lexical item and B is an XP. A set that results from merging an XP with a YP is a symmetric set or a *locally unstable* combination for which no lexical item can be identified as a head (Moro 2000, Chomsky 2013). For the derivation to converge, it is crucial for the combination to be labeled. One solution is for one of the members of the set to move out of the set via internal Merge (Moro 2000, Chomsky 2013). The result is that only one phrase remains properly contained within the set, and this phrase determines the label of the set:

(53)



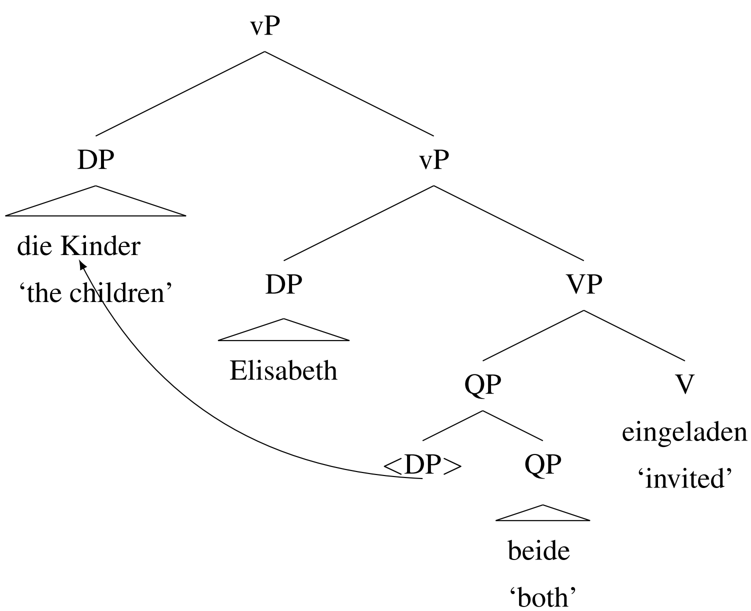
To illustrate the analysis for German, consider the following example from Ott (2015):

(54) Die Kinder hat Elisabeth beide eingeladen.
the children.ACC has Elisabeth both.ACC invited

(Ott 2015, 194, (96)) (German)

In this sentence, the DP 'the children' merges with the QP 'both' together in a symmetric set, {DP, QP}. Since the labeling algorithm cannot detect a lexical item in the set, movement of DP is forced to allow the set to be labeled. As a result of this movement, QP becomes the only phrase that is properly contained in the set, and consequently the set should be labeled as QP, as illustrated in the tree below:

(55)



(Ott 2015, 194, (97b))

In principle, moving either of QP and DP would asymmetrize the set; however, according to Ott, it is DP rather than QP that should move for pragmatic considerations. In particular, fronting DP results in a structure that is pragmatically felicitous in which the DP acts as frame setting (in the sense of Jacobs 2001) with respect to which the proposition that follows it can be interpreted. This is compatible with the view that syntax is not crash-proof, and that merge applies freely, but is constrained indirectly by constraints at the interfaces (e.g., Chomsky 2004, Ott 2015).

Note also that it is crucial for Ott's analysis to treat FQs (and remnants of topics) as elliptical nominals based on the fact that German allows free NP-ellipsis. This is also the case in Arabic, as illustrated in the example below:

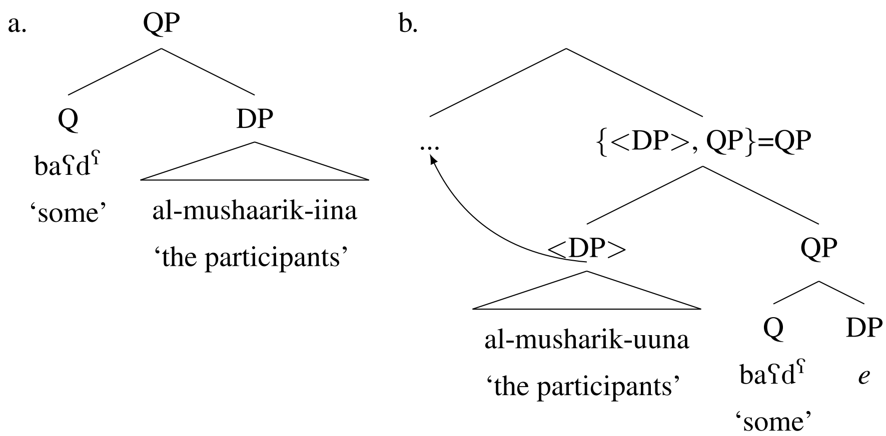
(56) miʔaat-u al-mwuatin-iina ʔuxl-u qabla al-fayadˤaan-i, wa
hundreds-NOM the-citizen-GEN evacuate.PASS.PAST-3M.PL before the-flood-GEN, and
[baʕdˤ-un *e*] la yazaalu ʕaaliq-an
[Some-NOM *e*] remain.IPFV.3M.SG stranded.3M.SG-ACC
'Hundreds of citizens were evacuated before the flood, and some are still stranded.'

Given this, I propose that all the examples of Q-float in Arabic involve merger of a QP with a null nominal in them. In non-floating constructions, on the other hand, the quantifier is merged with a DP as lexical item, giving rise to an asymmetric set that can be labeled as QP. The two merging options are illustrated in (58) for the examples in (9), repeated below:

(57) a. baʕdˤ-u al-mushaarik-iina fi musabaqat-i al-kitaabat-i
some-NOM the-participant-3M.PL.GEN in competition-GEN the-writing-GEN
atˤfaal-un.
children-NOM
'Some of the participants in the writing competition were children.'

b. al-mushaarik-uuna fi musabaqat-i al-kitaabat-i baʕdˤ-u=hum
the-participant-3M.PL.NOM in competition-GEN the-writing-GEN some-NOM=3M.PL
atˤfaal-un.
children-NOM
'The participants in the writing competition, some of them were children.'

(58)



The first merging option (=58a) gives rise to a continuous constituent while the second (=58b) gives rise to two autonomous phrases. Given the labeling framework outlined above, I propose the following definition of *a continuous constituent*:

(59) Given two syntactic objects X and Y, the set resulting from merging X and Y (i.e. {X, Y}) is a continuous constituent iff the set is labeled before any member is internally merged.

This definition should be accompanied with the assumption that the labeling algorithm computes the labels *before* internal merge of objects from the current phase applies. It follows, then, that a movement that is forced by labeling breaks the continuity of constituents because, at the point it applies, the set has not been labeled yet. In contrast, a movement that is not forced by labeling, say a wh-movement of a DP from within a PP ={P, DP}, for instance, does not break the continuity of the PP constituent, because at the point it applies through a phase edge, all the constituents inside that phase have been labeled (assuming that labels are crucial for semantic convergence at the phase level).

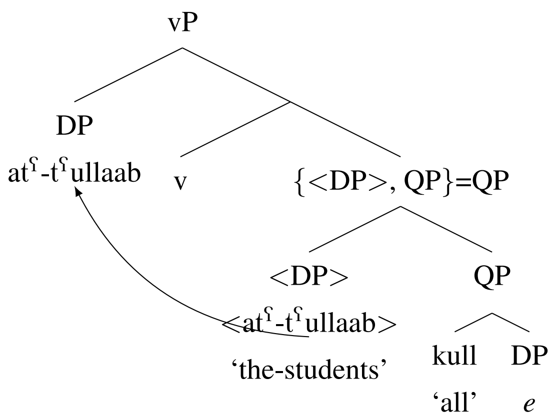
Now turning to the cases of Q-float in Arabic, consider the example in (5b), reproduced below:

(60) at^{ʕ}-t^{ʕ}ullaab-u qaddam-u kull-u=hum waraqat-an baħθiyya-tan.
the-students-NOM submit-3M.PL all-NOM=3M.PL paper-ACC research-ACC
"The students all submitted a research paper."

The labels of 'the students' and 'all' are DP and QP, respectively. The quantifier 'all' semantically takes 'students' as an argument. The quantifier and its associate combine into a set, {DP, QP}.

Because the set is symmetric, the labeling algorithm cannot identify a label for the set. Without a label, the set may not be integrated syntactically and semantically into the structure, and consequently the derivation will crash. One way to break the symmetry is for one of the members of the set to move, which is the DP ('students') for the pragmatic reasons explained briefly above. The label of the set will then be the label of the phrase that is properly contained in the set which is the label of the quantifier 'all' (QP). Assuming that derivations proceed in phases, the moved element moves via the edge of vP phase, where it may undergo further movements, as illustrated below:

(61)



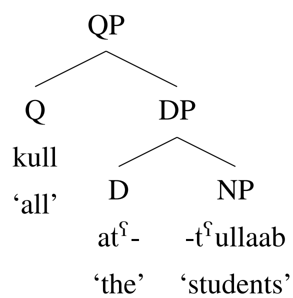
Note that case matching between the quantifier and the associate follows under the analysis presented. Any case checking head checks its features with all members of the set, which guarantees that each member is marked with the same case (Ott 2015). I suggest that the clitic appearing on the FQ is a result of matching between the nominals prior to movement. Also note that the shared phi and case features are insufficient to label {DP, QP} via the mechanism of labeling by feature-sharing (e.g., Chomsky 2013). I suggest, following Chomsky (2013), that mere feature matching is insufficient to render a set labelable; only agreement is, which is not what see here.

Also, as pointed out above, the analysis accommodates the non-floating cases. These are the cases when QP is not elliptical. Consider the example below again:

(62)	kull-u	atˤ-tˤullaab-i	qaddam-u	waraqat-an	baħθiyya-tan.
	all-NOM	the-students-GEN	submit-3M.PL	paper-ACC	research-ACC
	'All students submitted a research paper.'				

Here the quantifier and the nominal following it are not merged together in their base position as a symmetric set. Rather, they form a complex phrase (i.e., construct state) in which the quantifier selects the nominal phrase as a complement. In (5a), ‘all students’ is merged as an asymmetric set of {Q, DP}. I adopt the structure proposed by Shlonsky (2004) for construct states headed by a Q, as illustrated below (details left out):

(63)



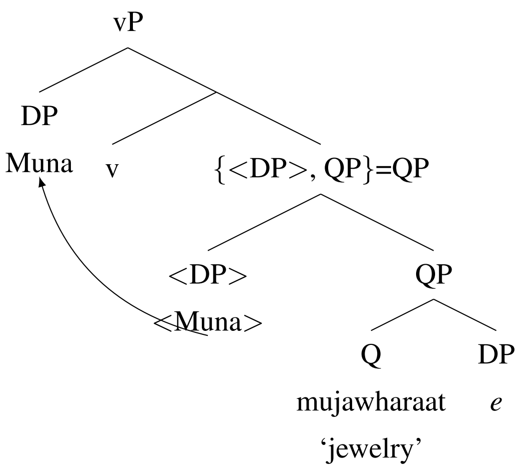
The case mismatch between the quantifier and the DP follows from the fact that the quantifier checks case with an outside case probe, being the head of the projection, while the DP checks case within the construct. The mechanism through which case is checked inside the construct is not crucial, but I assume, following Benmamoun (1999) and Bošković (2004), that the DP is assigned GENITIVE case by the quantifier *kull*.

Moreover, the analysis explains floating of elements that are not quantifiers; that is, cases in which a floating element is a nominal rather than a quantifier, as in (64).

(64) Muna fuqid-at mujawharaat-u=ha al-shahra al-madʕi.
Muna.NOM lose-PASS.PAST-3F.PL jewelry-NOM=3F.SG the-month the-last
‘Muna, her Jewelry was lost last month.’

I suggest that the floating elements here can also be viewed as quantificational elements given that they hold some semantic relation to their associates similar to the semantic relation that holds between a quantifier and its associate. More precisely, in these examples, the QP and DP can have a semantic relation of predicate-argument: possessor-possessee, whole-part, or superset-subset relation. Thus, I suggest that these floating elements are (elliptical) nominals that should be construed as QPs. In the same way explained above, in these cases, one of the nominals is a QP taking the other nominal (a DP) as an argument; thus, the merged set of these nominals is {DP, QP}. In (64), the associate DP moves out of the set of {DP, QP} and allows the set to be labeled as QP. Case and phi matching between the associate and the floating element occur via the same mechanisms explained above.

(65)



The analysis also explains the impossibility for examples like (66=47a) to have a non-floating version:

(66) Sally wa Sarah wa Suzan ijtaz-na kull-u=hunna al-ixtibaar-a.
Sally.NOM and Sarah.NOM and Suzan.NOM passed-3F.PL all-NOM=3F.PL the-test-ACC
'Sally, Sarah, and Suzan all passed the test.'

This sentence is derived by merging the coordinate structure and the quantifier together in a set of {&P, QP} (I follow Collins 1988, Johannessen 1998, and others in assuming that coordinate structures have the label of &P. But see e.g. Zhang 2010 for a different proposal). Note that in this example, the QP is an elliptical nominal. The coordinate structure moves out of the set and allows the set to be labeled as QP. Consider the non-floating version in (47b) again, on the other hand:

(67) kull-u (*min) Sally wa Sarah wa Suzan ijtaz-na al-ixtibaar-a.
all-NOM (*of) Sally.GEN and Sarah.GEN and Suzan.GEN passed-3F.PL the-test-ACC
'Sally, Sarah, and Suzan all passed the test.'

The ungrammaticality of the sentence (without the preposition) can be explained as follows. The coordinate structure and the quantifier are merged together in a particular syntactic position as a symmetric set. Again, the QP is an elliptical nominal. Neither of the members of the set moves, and the combination fails to be labeled, as a result, causing the derivation to crash. Note, however, that the sentence becomes grammatical with the preposition *of*. The grammaticality follows if the quantifier merges with the PP as a lexical item (i.e. a Q), forming an asymmetric set of {Q, PP}, as shown above for non-floating constructions. This clearly does not pose any issues to the labeling algorithm.[15]

Moreover, the analysis captures island sensitivity of FQs. The associate moves from a projection that dominates both it and the floating element. It also follows that, this symmetry-breaking movement, should in principle create A- and $\overline{\text{A}}$-chains, accounting for the fact that associates can occupy A and $\overline{\text{A}}$- positions in Arabic (and languages like West Ulster English).

It should be noted that the analysis presented predicts that Arabic FQs should appear only in thematic positions or where nominals are externally merged. As was shown in section 2.2, Arabic FQs appear in positions that are known to be NP trace positions, including the complement position of passives and unaccusatives where FQs are banned in other languages. One set of cases that seems to deviate from this generalization, however, is those in which FQs appear sentence-finally as in (22) above:

(68) ʔali-un wa Salim-un wa Saʕiid-un daxal-u al-maqha kull-u=hum.
Ali-NOM and Salim-NOM and Said-NOM enter-3M.PL the-café all-NOM=3M.PL
‘Ali, Salim, and Said all entered the café.’

As indicated earlier, English (and French) FQs, in contrast, are banned in these positions, and are allowed only if preceded by a PP or a secondary predicate:

(69) Larry, Sally and Darryl came into the café *all.

(70) Larry, Sally and Darryl came into the café all [at the same time].

(71) Larry, Sally and Darryl came into the café all [very tired].

I suggest that the contrast between English-type languages and Arabic is due to the fact that in Arabic, word order is freer than the word order in English. For instance, in Arabic, the subject may precede the verb or follow it, and may even be separated from the verb by VP adjuncts when

[15] One could instead posit a selectional or co-occurrence restriction on *all*, banning it from co-occurring with &P. This would capture the facts, but it remains an ad hoc stipulation that needs to be explained. The analysis I propose derives the contrast between the grammaticality of the floating version and the ungrammaticality of the non-floating version without stipulations. In the non-floating version, the derivation crashes because symmetry fails to be broken, while in the floating version, the derivation converges because symmetry is broken and the the set of the merged QP and &P could be labeled. This analysis makes it unnecessary to impose a co-occurrence constraint on *all*, as it accounts for the effects of such a constraint in derivational terms.

it follows the verb. This fact explains the distribution of FQs as seen above, and illustrated further below:

(72) a. daxal-a al-maqha kull-u at$^{\text{ʕ}}$-t$^{\text{ʕ}}$ullaab-i.
entered-3M.SG the-café all-NOM the-students-GEN
'All the students entered the café.'

b. at$^{\text{ʕ}}$-t$^{\text{ʕ}}$ullaab-u daxal-u al-maqha kull-u=hum.
the-students-NOM entered-3M.PL the-café all-NOM=3M.PL
'The students all entered the café.'

(73) a. daxal-a al-maqha kull-u at$^{\text{ʕ}}$-t$^{\text{ʕ}}$ullaab-i fi ðat-i al-waqt-i.
entered-3M.SG the-café all-NOM the-students-GEN at same-GEN the-time-GEN
'All the students entered the café at the same time.'

b. at$^{\text{ʕ}}$-t$^{\text{ʕ}}$ullaab-u daxal-u al-maqha kull-u-hum fi ðat-i
the-students-NOM entered-3M.PL the-café all-NOM=3M.PL at same-GEN
al-waqt-i.
the-time-GEN
'The students entered the café all at the same time.'

One could simply say that in these examples, the subject is merged in spec-VP as a symmetric set from which the associate moves; the verb moves resulting in the FQ appearing sentence-finally or near-sentence-finally. This would capture the passive and unaccusative examples perfectly. However, it predicts that with transitive verbs floating quantifiers should not appear sentence-finally after the object, contrary to fact, as shown in the example below:

(74) at$^{\text{ʕ}}$-t$^{\text{ʕ}}$alibaat-u qaraʔ-na ar-riwaya-ta kull-u=hunna.
the-students-NOM read-3F.PL the-novel-ACC all-NOM=3F.PL
'The students all read the novel.'

Thus, it would be more plausible to say that the peculiarity of the distribution of FQs in Arabic arises from the fact that subjects may appear before or after VP (cf. Shlonsky 1991 who argues that in Hebrew subjects can be right-peripheral).

Before concluding this section, I should point out a potential problem illustrated by the examples below.

(75) a. beit-u=hum kull-u=hum
home-NOM=3M.PL all-NOM=3M.PL
'the house of all of them'

b. qaraar-u-hum kull-u-hum
decision-NOM-3M.PL all-NOM=3M.PL
'the decision of all of them'

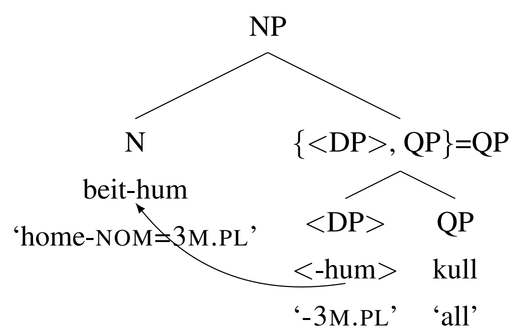
c. ħaal-u=hum kull-u=hum
situation-NOM=3M.PL all-NOM=3M.PL
'the situation of all of them' '

d. sharaf-u=hum kull-u=hum
honor-NOM=3M.PL all-NOM=3M.PL
'the honor of all of them'

e. muʕtaqad-u=hunna kaafat-u=hunaa
belief-NOM=3F.PL all-NOM=3F.PL
'the belief of all of them'

In these examples, the FQ associates with a preceding pronominal possessor within a construct state nominal, which is a problem for the analysis given that this pronominal clitic cannot be viewed as a DP and consequently cannot have moved from a symmetric set that contains both it and the quantifier (note that the same problem arises in cases in which a FQ associates with an object pronominal clitic as in (38b)). The current analysis would explain the floating pattern in (75a) as follows. Two nominal phrases are annexed to each other. The phrase *-hum kull-u-hum* is itself a construct inside the bigger construct *beit=hum kull-u=hum*. Following Shlonsky (2004), nominal construct states have the structure of an NP in which an N selects a DP/QP as a complement. In (75a), the head *beit-* merges with a symmetric set of {QP, DP}. In order for the set to be labeled, the associate DP (*-hum*) must move. Here it moves and cliticizes on the N *beit-*, as illustrated below. The clitic appearing on Q is a result of agreement.

(76)



This is how my analysis would capture these cases, but there remains the question whether analyzing pronominal clitics as DPs is a desirable option. I will leave this issue open for future research, however.

5 Conclusion

In this paper, I presented a detailed description of the syntax of Q-float in Arabic. The facts suggest a movement dependency between a FQ and its associate, but also show that it is impossible for them to have formed a continuous constituent at any stage of the derivation. To account for these two conflicting facts, following Ott (2012, 2015), I proposed that Arabic Q-float constructions involve merger of a symmetric set of two autonomous phrases. In order for the set to be labeled, it should be asymmetrized via movement of the associate out of the set. A major result of this study is that the distribution of FQs in Arabic serves as a powerful diagnostic of the distribution of lower copies of displaced NPs (NP trace positions in traditional terms). It also provides support for the Labeling framework that emerged from Chomsky (2013) and related work.

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