On the interrogative terms *ʔaddēf* and *kam* in Syrian Arabic

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Abstract

This paper compares two interrogative terms—*ʔaddēf* and *kam*—in Syrian Arabic. Both of these form questions about quantity. I argue, though, that *ʔaddēf* and *kam* are fundamentally different both syntactically and semantically. *ʔaddēf* can be separated from the term that contributes the scale it asks about, which is typical of degree operators in Syrian Arabic. Various scales are compatible with *ʔaddēf*. This makes *ʔaddēf* similar to English *how* as in *how high*, *how fast*, *how much*, etc. *Kam*, on the other hand, combines only with a singular count noun and asks how many instances of the count noun denotation have the property the remnant sentence denotes. This, and syntactic and morphological parallels between *kam* and numerals in Syrian Arabic, point to the conclusion that *kam* is an interrogative numeral.

Keywords

degree – questions – superlatives – semantics – Syrian Arabic

1 Introduction

This paper compares two quantity interrogative terms in contemporary Syrian Arabic, which is representative of the Levantine dialects in the respects treated here. One term, *ʔaddēf*, is argued to be a direct counterpart to English *how* used in phrases like *how smart*, *how tall*, *how much*, *how many* ..., although independent differences between the two languages in the syntax of degree modification obscure the resemblance to an extent. The other term, *kam*, is argued to be a wh-numeral. The meanings of these two terms are more pro-

foundly different than the superficial similarity in function leads one to expect. In section 2, I describe the distribution and meaning of *ʔaddēf* and in section 3 the distribution and meaning of *kam*. Section 4 treats certain non-canonical uses of the two terms. The conclusion in section 5 attributes to *ʔaddēf* the status of a wh-degree operator and to *kam* the status of a wh-numeral.

2 *ʔaddēf*

The term *ʔaddēf* (sometimes pronounced *ʔaddē*)¹ occurs at the beginning of a clause and is associated with some scalar term in its scope. The association is a syntactic one subject to structural constraints described in more detail below. In (1), for example, *ʔaddēf* associates with the gradable predicate adjective *fāṭra* ‘smart’.

- (1) *ʔaddēf mona fāṭra-a?!/!*
 how Mona smart-FS
 i. ‘How smart is Mona?’
 ii. ‘How smart Mona is!’

As the translations to (1) indicate, (1) is ambiguous between a question asking what the degree of Mona’s smartness is and an exclamative statement expressing astonishment at the degree to which Mona is smart. Although *ʔaddēf* arguably plays a similar semantic role in the two readings, there are some reasons, discussed in section 4, to believe that the two readings do not share the same logical form. For that reason, I restrict myself here to the purely interrogative use of *ʔaddēf* and separate this reading from the exclamative reading in the discussion to follow by embedding *ʔaddēf* clauses under the root clause *mā baʕrif* ‘I don’t know’, as illustrated in (2). Since (2) explicitly denies knowledge of how smart Mona is, no exclamative reading expressing surprise at how smart she is is available, thus isolating the purely interrogative use of *ʔaddēf*.

1 This term is not attested in Classical Arabic, and to my knowledge its development is not documented in the historical record. It is morphologically composed of the components *ʔadd* (Classical *qadd*) ‘size/amount’, *ʔē* (Classical *ʔayy*) ‘which’ and, optionally, *f*, itself a shortening of *fī* (Classical *fay?*) meaning ‘thing’. It therefore appears to be a permutation of something along the lines of *ʔē (fī) ʔadd-u* ‘which (thing) [is] size/amount-its’, i.e. ‘What is its size/amount?’. This composition does not seem to be obvious to linguistically naive native speakers, meaning that the term is very thoroughly grammaticalized into a lexical item in contemporary Syrian Arabic.

- (2) *mā b-a-ʕrif ʔaddēf mona ʕāṭr-a.*
 not IND-1S-know how Mona smart-FS
 'I don't know how smart Mona is.'

ʔaddēf requires a scalar associate. If the sentence following it does not contain a gradable term, the result is interpretationally infelicitous. Since turning on the light, for example, is not gradable, *ʔaddēf* is not felicitous with this predicate, as (3) shows, where the adverb *tlit marrāt* 'three times' is inserted to preclude the possibility of *ʔaddēf* associating with a covert temporal adverb modifying *ʕaʕʕal* 'turn on', yielding an interpretation along the lines of 'how many times'.

- (3) **mā b-a-ʕrif ʔaddēf mona ʕaʕʕl-it ɖ-ɖaw tlit*
 not IND-1S-know how Mona turned.on-3FS the-light three
marr-āt.
 time-PL
 *'I don't know how much Mona turned on the light three times.'

The examples discussed so far suffice to demonstrate an immediately evident difference between English and Syrian Arabic: Arabic *ʔaddēf* can be linearly separated from its scalar associate, while the English counterpart *how* must be adjacent to it. Both *ʔaddēf* and *how* occur at the left edge of the clause, the typical position for wh-elements (interrogative phrases) in both languages. But English *how* is always immediately followed by its scalar associate, hence *How smart is she?* rather than **How is she smart?*. The standard analysis of English takes *how* to be a wh-degree operator which asks for the maximal degree to which some property holds (Rullmann, 1995; Beck and Rullmann, 1999).² This term combines in the base structure with the term that denotes the property in question, illustrated in (4a). In the surface structure, the phrase *how*+scalar associate moves to the left edge, which in English in turn triggers subject-auxiliary inversion, illustrated in (4b).

- (4) a. Mona is [how smart]
 b. [how smart]_{*i*} is Mona *t_i*

The scalar associate of *how* in English can be an adjective modifying a noun, as in (5). The derivation of the surface structure in (5c) appears to involve two

2 This use is of course in addition to its use as an interrogative of manner, as in *How did you fix the heater?* Historical or perhaps synchronic connections between these two uses are worth investigating in their own right.

different permutations. First, *how* and the associated adjective move to the left edge of the noun phrase in which they occur (5b), and then that noun phrase is displaced to the clause-initial position for wh-phrases (5c).³

- (5) a. Base: Mona read [a [how difficult] book]
 b. Step 1: Mona read [[how difficult]_i a *t_i* book]
 c. Step 2: [[how difficult]_i a *t_i* book]_j did Mona read *t_j*

There is no semantic justification for movement of the entire noun phrase when *how* combines with an adjective within the noun phrase. Such cases involve ‘pied-piping’ of the noun phrase for syntactic reasons (Ross, 1967; Horvath, 2006). Pied piping of the noun phrase is preceded by movement of *how* to the left edge of the noun phrase, which again involves pied piping of the adjective with which *how* combines. There is also no semantic justification for pied piping of the adjective in this step, nor, for that matter, pied piping of the predicate adjective with *how* in (4b). It appears that when *how* moves to the left periphery, it takes the minimal adjective phrase (as in (4b) and (5b)) or noun phrase (as in (5c)) that it occurs in with it.

A last remark about English is in order before returning to the Syrian Arabic facts. In the derivations sketch above, the scalar associate of *how* is an adjective. If the scalar term involved is not an adjective, *much* is inserted to fulfill what is apparently a selectional requirement of *how* (on its degree interrogative use), that it combine in the base structure with an adjectival category. For example, when we want to combine *how* with a nominal associate, like the mass noun *coffee*, we cannot do so directly, asking **How coffee did Mona drink*, but must first combine *how* with the dummy adjective *much* and then the result *how much* with the true scalar associate *coffee*, as in (6a) (Corver, 1997; Solt, 2015). Likewise when *how* has a verbal associate as in (6b).

- (6) a. How *(much) coffee did Mona drink?
 b. How *(much) does Mona deserve the prize?

A well-know quirk of the dummy adjective in English is that when the associate of *how* is a plural count noun, *many* is inserted rather than *much*. This is apparently a syntactic sensitivity to the count/mass distinction in the noun with no obvious semantic consequences (both mass nouns and plural count

3 Step 1 might not be directly related to wh-movement; it takes place whenever the adjective has a pre-adjectival specifier of its own, as in *I read that difficult a book, too*. See Bresnan (1973).

nouns are scalar in the relevant way and accordingly combine with *how* with the mediating adjective).

- (7) How *(many) books did Mona read?

As mentioned above, Syrian Arabic distinguishes itself in allowing the wh-degree operator *ʔaddēf* to be separated from its scalar associate. In what follows, I investigate the dependency between *ʔaddēf* and its scalar associate in detail and find that 1) it is subject to constraints on A' movement, and also that 2) the constraints are identical to those I have documented on a similar-looking displacement between the superlative term *aktar* 'most' and its scalar associate (Hallman, 2016). While movement is implicated in both contexts, there is at least some evidence that it is not *ʔaddēf* or *aktar* itself that moves, but a null operator that derives a degree predicate. At the very least, the discussion below shows that the displacement of *ʔaddēf* from its scalar associate seen in (2) and other examples below is not an idiosyncrasy of *ʔaddēf*, but a general property of degree constructions in Syrian Arabic.

In (2), *ʔaddēf* associates with a predicate adjective. Like English *how*, it may associate with a variety of other scalar terms. It may associate with a mass noun or plural count noun, parallel to (6a) and (7), as shown in (8). Note that no dummy adjective analogous to *much/many* is employed here. This already suggests that *ʔaddēf* need not combine with an adjective, unlike English *how*. Since *ʔaddēf* does not combine with an adjective, no dummy adjective is necessary when its scalar associate is non-adjectival.

- (8) *mā b-a-ʕrif ʔaddēf mona ʕirb-it (fanāzīn) ʔahwe l-yōm.*
 not IND-1S-know how Mona drank-3FS (cups) coffee the-day
 'I don't know how much coffee / how many cups of coffee Mona drank today.'

ʔaddēf may associate with a gradable adverb, including one expressed as a prepositional phrase, as shown in (9).

- (9) *mā b-a-ʕrif ʔaddēf mona kân-it ʕam ti-sūʔ bi-surʕa*
 not IND-1S-know how Mona was-3FS PROG 3FS-drive with-speed
lamma waʔʔf-it-a ʕfurʕa.
 when stopped-3FS-her the-police
 'I don't know how fast Mona was driving at the time the police stopped her.'

ʔaddēf may associate with a gradable verb, as shown in (10).

- (10) *mā b-a-ʕrif ʔaddēf mona b-ti-stāhil l-ḏāyze.*
 not IND-1S-know how Mona IND-3FS-deserve the-prize
 'I don't know how much Mona deserves the prize.'

It may also associate with the 'pluractional' dimension of a non-gradable verb, where the degree it asks about is associated with a scale of frequency, duration or intensity, as illustrated in (11).

- (11) *mā b-a-ʕrif ʔaddēf mona dars-it la-l-faḥṣ.*
 not IND-1S-know how Mona studied-3FS for-the-test
 'I don't know how much Mona studied for the test.'

In light of the possibility in (11), it is worth clarifying that the sentences cited above with other scalar associates are not on some level all parasitic on pluractionality. If Mona drinks coffee a lot (meaning in this case 'often'), then she presumably drinks a lot of coffee, raising the specter that *ʔaddēf* really only ever associates with the verb, and other apparent associates are simply entailments of the pluractionality associate. But a plural object as well as other potential gradable terms are legitimate associates for *ʔaddēf* even in the absence pluractionality, which is particularly clear in the case of non-gradable stative predicates. Since one cannot 'own cats a lot', (12) can only be interpreted as talking about how many cats Mona owns. This means that the scalar associate of *ʔaddēf* in (12) is definitely the plural object, not the verb.

- (12) *mā b-a-ʕrif ʔaddēf mona ʕind-a ʔiṭaṭ.*
 not IND-1S-know how Mona at-her cats
 'I don't know how many cats Mona has.'

All of these associations may cross a clause boundary (subject to island constraints, as described in more detail below). I demonstrate this on the basis of the adverbial associate illustrated in (9), but this example is representative; *ʔaddēf* may associate with any scalar associate over a clause boundary.

- (13) *mā b-a-ʕrif ʔaddēf b-ti-txayyal ʔinnu mona kān-it*
 not IND-1S-know how IND-2MS-imagine that Mona was-3FS
ʕam ti-sū? bi-surʕa lamma waʔʔ-it-a f-furṭa.
 PROG 3FS-drive with-speed when stopped-3FS-her the-police
 'I don't know how fast you think Mona was driving at the time the police stopped her.'

There is evidence that the relation between *ʔaddēf* and its scalar associate is a syntactic dependency with properties of non-argument (A') chains. The dependency may not cross over syntactic boundaries that are known to restrict A' movement in English. For example, *ʔaddēf* may not associate with a scalar associate in an adjunct clause, shown in (14a), or a factive complement clause, shown in (14b), among other types of syntactic islands.

- (14) a. *mā b-a-ʕrif ʔaddēf kân karîm xâyif lamma mona*
 not IND-1S-know how was Karim afraid when Mona
sāʔ-it bi-surʕa.
 drove-3FS with-speed
 'I don't know how afraid Karim was when Mona drove fast.'
 *'I don't know how fast Karim was afraid when Mona drove.'
- b. *mā b-a-ʕrif ʔaddēf karîm kân mistayrib innu mona kân-it*
 not IND-1S-know how Karim was surprised that Mona was-3FS
ʕam ti-sūʔ bi-surʕa.
 PROG 3FS-drive with-speed
 'I don't know how surprised Karim was that Mona was driving fast.'
 *'I don't know how fast Karim was surprised that Mona was driving.'

In addition to garden-variety constraints on A' chains, the relation between *ʔaddēf* and its scalar associate cannot cross over a noun phrase boundary. Although a potential scalar associate *ʕaʕbe* 'difficult' is available in (15), it is contained in the noun phrase (*masʔale ʕaʕbe*) that *ʔaddēf* is external to. Hence, the only available reading for (15) is one in which *ʔaddēf* locally associates with the pluractionality of the verb *ħall* 'solve'.

- (15) *mā b-a-ʕrif ʔaddēf mona ħall-it masʔale ʕaʕbe.*
 not IND-1S-know how Mona solved-3FS problem difficult.
 'I don't know how much Mona solved a difficult problem.'
 *'I don't know how difficult a problem Mona solved.'

A particularly curious restriction on the use of *ʔaddēf* is that although it can associate with a plural noun phrase in principle, as in (8), and with an adverbial phrase in principle, as in (9), it may not associate with a plural noun used adverbially, as (16) demonstrates, where *marrāt* 'times' is the potential associate.

- (16) **mā b-a-ʕrif ʔaddēf mona rāh-it la-miʕr marr-āt.*
 not IND-1S-know how Mona went-3FS to-Egypt time-PL
 ('I don't know how many times Mona went to Egypt.')

Whatever the explanation for (16), the observation that the dependency between ʔaddēf and its scalar associate is subject to configurational constraints indicates that it is a syntactic dependency. That some of these constraints are typical constraints on A' movement suggest that ʔaddēf moves from a position local to its scalar associate to its surface position at the left clause edge. In Syrian Arabic, unlike English, this transformation does not pied pipe the scalar associate. A comparison of the behavior of ʔaddēf with the Syrian Arabic superlative term *aktar* 'most' casts some light on the reason for the absence of pied piping in Syrian Arabic degree questions. The following remarks compare the description of *aktar* 'most' in Hallman (2016) with the description of ʔaddēf above. I claim that extending the analysis of superlatives to ʔaddēf sheds some light on the proper analysis of displacement in degree questions.

The superlative term *aktar* 'most' always directly precedes a noun phrase and associates with a scalar term inside that noun phrase, either an adjective modifying the head noun or a scalar term inside a modifier of the noun, such as a relative clause. In (17), *aktar* is appended to the noun phrase *waḥde fāṭra bi-ṣ-ṣaff*, literally 'one smart in the class', and associates with the scalar term *fāṭra* 'smart'. The phrase so derived refers to the entity meeting the description 'smart one in the class' to a greater degree of smartness than anyone else with that description. In this case, *aktar* associates with an adjective (*fāṭra* 'smart') modifying the noun (*waḥde* 'one') that *aktar* 'most' directly precedes. As this example shows, *aktar*, like ʔaddēf, can be separated from its scalar associate.

- (17) *mona ʔaktar waḥd-e fāṭr-a bi-ṣ-ṣaff.*
 Mona most one-FS smart-FS in-the-class
 'Mona ist the smartest one in the class.'

Like ʔaddēf, the scalar associate of *aktar* may be a mass or plural noun, as (18) shows.

- (18) *mona ʔaktar waḥd-e firb-it (fanāzīn) ʔahwe.*
 Mona most one-FS drank-3FS (cups) coffee
 'Monda drank the most (cups of) coffee.'

Also like ʔaddēf, the associate may be an adverbial phrase, such as *bi-surʿa* 'with speed' in (19).

- (19) *mona ʔaktar waḥd-e kân-it ʕam ti-sūʔ bi-surʕa.*
 Mona most one-FS was-3FS PROG 3FS-drive with-speed
 'Mona drove the fastest.'

Superlative *aktar* may also associate with a gradable verb, as (20) shows.

- (20) *mona ʔaktar waḥd-e b-ti-stāhil l-ʕāyze.*
 Mona most one-FS IND-3FS-deserve the-prize
 'Mona deserves the prize the most.'

And the dependency between *aktar* and its scalar associate may cross over a clause boundary, as (21) shows.

- (21) *mona ʔaktar waḥde b-ti-txayyal ʔinnu karīm kân ʕam yi-sūʔ*
 Mona most one-FS IND-3FS-thinks that Karim was PROG drive
bi-surʕa.
 with-speed
 'Mona thinks that Karim drove the fastest.'

Yet, as in the case of *ʔaddēf*, the dependency may not cross over an island for A' movement, such as an adjunct island in (22a) or a factive island in (22b). The ungrammatical reading of (22a) asserts that everyone was afraid because Mona drove at a certain speed, and that Karim's speed (the speed such that Karim was afraid because Mona drove that fast) was the greatest; the ungrammatical reading of (22b) asserts that everyone was surprised that Mona drove a certain speed, and Karim's speed (the speed such that Karim was surprised that Mona drove that fast) was the greatest.

- (22) a. *karīm ʔaktar wāḥid kân xāyif lamma mona sāʔ-it*
 Karim most one was afraid when Mona drove-3FS
bi-surʕa.
 with-speed
 'Karim was the most afraid when Mona drove fast.'
 *'Karim was afraid when Mona drove the fastest.' (everyone else was afraid when she drove at lower speeds)
- b. *karīm ʔaktar wāḥid kân mistayrib innu mona sāʔ-it*
 Karim most one was surprised that Mona drove-3FS
bi-surʕa.
 with-speed

'Karim was the most surprised that Mona drove fast.'

*'Karim was surprised that Mona drove the fastest.' (everyone else was surprised that she drove at lower speeds)

Further, the association between *aktar* and its associate may not cross over a noun phrase boundary, as (23) shows, where *aktar* is unable to take *šaʕbe* 'difficult' as a scalar associate to mean that Mona solved the most difficult problem, because *šaʕbe* is buried in the noun phrase *masʔale šaʕbe* 'difficult problem'.

(23) *mona ʔaktar waḥd-e ḥall-it masʔale šaʕbe.*

Mona most one-FS solved-3FS problem difficult.

'Mona solved a difficult problem the most.'

*'Mona solved the most difficult problem.'

The meaning that (23) may not express can be expressed by appending *aktar* to the noun phrase *masʔale šaʕbe* 'difficult problem', as in (24a). Since *aktar* is itself part of the noun phrase projected by the noun *masʔale* in this case, the dependency between *aktar* and the adjective *šaʕbe* does not cross over a noun phrase boundary. Note that under this circumstance, the adjective may morphologically fuse with the superlative in the pre-nominal position, as (24b) illustrates.

(24) a. *mona ḥall-it aktar masʔale šaʕbe.*

Mona solved-3FS most problem difficult.

'Mona solved the most difficult problem.'

b. *mona ḥall-it ašʕab masʔale.*

Mona solved-3FS difficult-est problem.

'Mona solved the most difficult problem.'

Lastly, although *aktar* may associate with a plural noun, as in (18), and with an adverb, as in (19), it may not associate with a plural noun used adverbially, such as *marrāt* 'times' in (25).

(25) **mona ʔaktar waḥd-e rāḥ-it la-miṣr marr-āt.*

Mona most one-FS went-3FS to-Egypt time-PL

('Mona went to Egypt the most times.')

These constraints are of course identical to those documented for *ʔaddēf* above. As in the case of *ʔaddēf*, an analysis suggests itself at first glance accord-

ing to which *aktar* moves from a position adjacent to the scalar associate to its derived position, pre-nominal in the case of *aktar*, and sentence-initial in the case of *ʔaddēf*. However, I claim in Hallman (2016) that it is not actually *aktar* itself that moves, but rather a null operator that derives a degree predicate, which serves as the semantic argument of *aktar*. *Aktar* itself is base generated in its surface position at the edge of this degree predicate. This claim is based on the observation that *aktar* does not display reconstruction effects, as would have been expected if it itself underwent A' movement. While I will not reiterate the reconstruction argument for *aktar* here, I point out that there is at least one piece of evidence specific to *ʔaddēf* that indicates that *ʔaddēf* is base generated at the left clause edge, rather than in a position adjacent to its scalar associate.

The claim that *ʔaddēf* is base generated at the left clause edge predicts that *ʔaddēf* should never occur 'in situ', even though Arabic admits wh-in situ relatively readily (see Wahba 1984 on Egyptian Arabic, Ouhalla 1996 on Iraqi, and Aoun et al. 2010 on Lebanese Arabic, closely related to Syrian). For example, (26a), with *mīn* 'who' in its base position, can (with rising intonation on *mīn*) be interpreted as the same question as (26b), where *mīn* has moved to clause-initial position, pied piping the preposition that governs it.

- (26) a. *ħkī-tu maʕ mīn l-yōm?*
 talked-2PL with who the-day
 'Who did you talk to today?'
 b. *maʕ mīn ħkī-tu l-yōm?*
 with who talked-2PL the-day
 'Who did you talk to today?'

But *ʔaddēf* cannot occur in a position local to its scalar associate, as (27a) shows; it must occur at the left clause edge as in (27b). So as predicted, *ʔaddēf* does not occur in situ. I place *ʔaddēf* after the associated mass noun in the hypothetical (27a), since modifiers generally follow the noun they modify in Arabic, but a pre-nominal placement for *ʔaddēf* does not improve the judgment.

- (27) a. **ʕrib-tu ʔahwe ʕaddēf l-yōm?*
 drank-2PL coffee how the-day?
 ('How much coffee did you drink today?')

- b. *ʔaddēf frib-tu ʔahwe l-yōm?*
 how drank-2PL coffee the-day?
 'How much coffee did you drink today?'

That fact that *ʔaddēf* never occurs in situ in a language that allows wh-in-situ in principle supports the claim that *ʔaddēf* is base generated at the left clause edge. This also immediately explains why *ʔaddēf* does not pied pipe any other material to the left edge—it does not move to the left edge at all, but is base generated there. What moves in degree constructions is a null operator (*Op* in (28)) that derives a predicate over degrees that functions as the semantic argument of *ʔaddēf*. Examples with *ʔaddēf*, then, have the structure illustrated in (28), where *Op* moves but *ʔaddēf* is generated its surface position.

- (28) *ʔaddēf Op_d mona d-fāṭr-a*
 how Mona d-smart-FS
 'How smart is Mona?'

These observations indicate that separation of *ʔaddēf* from its scalar associate in Syrian Arabic is not specific to the lexical item *ʔaddēf* but rather is a general property of degree constructions in this language. The separation is made possible by the existence of a null operator that derives a degree predicate from a constituent containing a scalar term. Degree predicate abstraction requires movement of the null operator, which is subject to constraints on movement. As a result, *ʔaddēf* and superlative *aktar* may be separated from their scalar associates, but it is not *ʔaddēf* and *aktar* that move, but rather the null operator responsible for degree predicate abstraction in Syrian Arabic. I turn now to a comparison of the behavior of *ʔaddēf* with that of *kam*, and find they are fundamentally different.

3 Kam

The Syrian Arabic term *kam* also occurs at the left clause edge.⁴ It combines with a singular count noun, which I refer to as its 'restriction', and derives a wh-phrase asking how many instances of the restriction denotation have the property described by the remnant sentence, as illustrated in (29). As such, it has a superficial similarity to *ʔaddēf*, which also asks about quantity. In spite of

4 While *ʔaddēf* is a neologism of uncertain age, *kam* is inherited from Classical Arabic, where it had a use and meaning essentially identical to that of its modern cognate.

the similarity in function to English *how many*, I claim that *kam* is not a degree modifier like *how* or *ʔaddēf*. I gloss *kam* as ‘#’ for reasons that will be clear shortly. Like *ʔaddēf*, *kam* potentially has an exclamative use that I preempt by placing the interrogative clause under *mā baʕrif* ‘I don’t know’. I return to the exclamative use in section 4.

- (29) *mā b-a-ʕrif kam ktāb ʔara t-ṭullāb.*
 not IND-1S-know # book read the-students
 ‘I don’t know how many books the students read.’

Unlike *ʔaddēf*, *kam* cannot be separated from its restriction, whether this is singular or plural, as (30) shows.

- (30) **mā b-a-ʕrif kam ʔara t-ṭullāb ktāb/kitub.*
 not IND-1S-know # read the-students book/books
 (‘I don’t know how many books the students read.’)

The term *kam* may not apply to any other gradable term, such as the predicate adjective in (31a), nor even a mass noun, as shown in (31b). Various other potential associates such as gradable verbs and adverbs are also not compatible with *kam*.

- (31) a. **mā b-a-ʕrif kam ʕāṭr-a mona.*
 not IND-1S-know # smart-FS Mona
 (‘I don’t know how smart Mona is.’)
 b. **mā b-a-ʕrif kam ʔahwe ʕirb-it mona.*
 not IND-1S-know # coffee drank-3FS Mona
 (‘I don’t know how much coffee Mona drank.’)

The phrase consisting of *kam* and the singular count noun associate is displaced as a constituent from the canonical argument position of the count noun. For example, *ktāb* ‘book’ is interpreted as the theme of the relation *ʔara* ‘read’ in (29), but does not appear in the canonical post-verbal position for objects. Rather, it occurs in the canonical sentence-initial position for wh-elements. Aoun et al. (2010) claim that the phrase *kam+NP* moves from the canonical argument position of the NP to the clause initial position subject to constraints on A’ movement. It is unbounded in principle, as (32a) shows, but may not cross a factive island boundary as illustrated in (32b), among other barriers to movement.

- (32) a. *mā b-a-ʕrif kam ktāb b-ti-txayyal innu mona*
 not IND-1S-know # book IND-2MS-imagine that Mona
ʔar-it.
 read-3FS
 'I don't know who many books you think Mona read.'
- b. **mā b-a-ʕrif kam ktāb kin-t mistayrib innu mona*
 not IND-1S-know # book were-2MS surprised that Mona
ʔar-it.
 read-3FS
 (*'I don't know how many books you were surprised that Mona read.')

The fact that *kam* bears a close syntactic relationship to its NP restriction and the fact that the constituent so formed is separated from the canonical argument position of the NP indicates that *kam* is combined with its NP restriction in the base structure. Movement of *kam* to the canonical left-peripheral position of wh-elements pied pipes the restriction. This displacement is, as ever, subject to constraints on A' movement. Two pieces of evidence support the view that *kam*+NP moves from an argument position to the left periphery. One is that this displacement not only pied pipes the nominal restriction of *kam*, but may also pied pipe a preposition, if *kam*+NP occurs in a prepositional phrase, as (33) illustrates. Here, *kam ʕabal* 'how many mountains' occurs in a prepositional phrase headed by *ʕala* 'on' ('climb' is expressed literally as 'ascend on'). The entire constituent *ʕala kam ʕabal* occurs clause-initially here. That is, movement of *kam* has pied piped the whole prepositional phrase containing it. Since the preposition *ʕala* 'on' is selected lexically by the verb *ʕalaʕ* 'climb', and selection takes place in the base structure (Chomsky, 1981), the grammaticality of (33) supports the view that *kam*+NP moves from an argument position to its surface clause-initial position.

- (33) *mā b-a-ʕrif ʕala kam ʕabal ʕalaʕ-it mona.*
 not IND-1S-know on # mountain climbed-3FS Mona
 'I don't know how many mountains Mona climbed'

A second piece of evidence supporting the view that *kam*+NP originates in the argument position of the NP and moves in the surface structure is that like other wh-phrases in Syrian Arabic, it may occur in situ, as Aoun et al. (2010) show. Like *mīn* 'who' in (26a) and unlike *ʔaddĒf*, *kam*+NP does not occur obligatorily at the left clause edge, but may occur in the canonical position of the NP, as (34) shows (compare *ʔaddĒf* in (27a)). Since the wh-element in situ prefers to

have matrix scope, I omit the embedding phrase *mā baʕrif* ‘I don’t know’ here, since negation would represent a barrier to movement.

- (34) *ʔarī-t kam ktāb l-yōm?*
 read-2MS # book the-day?
 ‘How many books did you read today?’

As this description makes evident, *kam* has little in common with *ʔaddēf*. *ʔaddēf* is a general purpose interrogative degree modifier that asks to what degree some scalar property holds. The scale may be contributed by any gradable term, including plural nouns. *ʔaddēf* does not itself combine with its scalar associate. It is base generated at the left clause edge and applies to a degree predicate created by movement of a covert degree operator from the scalar associate. *Kam*, on the other hand, is highly specialized. It combines only with a singular count noun and nothing else. This is particularly odd since singular count nouns cannot function as scalar associates for *ʔaddēf*, as (35) shows.

- (35) **mā b-a-ʕrif ʔaddēf ʔar-it mona ktāb.*
 not IND-1S-know how read-3FS Mona book
 (*‘I don’t know how much book Mona read.’)

This indicates that singular count nouns do not have a scale built into their meaning, which stands to reason: it is pluralization that builds a denotation whose elements can be ordered on a scale of quantity (Link, 1983; Lønning, 1987). This makes it all the more puzzling that *kam* combines exclusively with singular count nouns, and indicates that what *kam* does semantically is not on par with what *ʔaddēf* does semantically. One fact in particular suggests that *kam* is not a degree modifier. Even when it combines with a singular count noun, as it must, it may not associate with a scalar term modifying that noun, as for example the superlative may. Compare (24a), repeated in (36a) below, where *aktar* associates with the adjective modifying the singular noun it precedes, to (36b), where *kam* also precedes a singular noun but cannot associate with an adjective modifying that noun. Example (36b) may only ask how many difficult problems Mona solved, not how difficult the problem was.

- (36) a. *mona hall-it aktar masʔale ʕaʕbe.*
 Mona solved-3FS most problem difficult.
 ‘Mona solved the most difficult problem.’

- b. *kam masʔale ʃaʃbe ʔall-it mona?*
 # problem difficult solved-3FS Mona
 ‘How many difficult problems did Mona solve?’
 *‘How difficult a problem did Mona solve?’

While *kam* has little in common with ʔaddĒʃ (other than being a wh-word), it does have quite a lot in common with numerals in Syrian Arabic. While the numerals *three* through *ten* in Syrian Arabic combine with a plural noun, this format is limited to these numerals and has no generality. The infinitely many numerals above ten combine with a singular noun, as *kam* does. This noun must of course be a count noun, since it is characteristic of mass nouns that they do not consist of discrete components that can be counted.⁵

- (37) a. *mona ʃirb-it tlit *(fanāzīn) ʔahwe.*
 Mona drank-3FS three *(cups) coffee
 ‘Mona drank three cups of coffee.’
 b. *mona ʃirb-it tliṭṭaʃʃ *(finzān) ʔahwe.*
 Mona drank-3FS thirteen *(cup) coffee
 ‘Mona drank thirteen cups of coffee.’

Another commonality between *kam* and the numerals is somewhat more subtle. Ouwayda (2013, 2014, 2017) reports that in the closely related Lebanese dialect, a subject modified by a numeral above 10 may trigger either plural or singular agreement on the verb, plural reflecting the ‘real’ number of the subject and singular its grammatical number. She reports that the singular agreement, marked by the absence of the plural suffix *-u* in (38), is obligatorily distributive; the sentence then can only be read to mean that each boy ate an entire cake of his own. The plural agreement is compatible with a collective reading in which the boys shared a cake.

5 Classical Arabic *kam* shares this combinatorial restriction but displays an additional similarity to the numerals that cannot be replicated in modern Arabic. In the context of both numerals (above ten) and *kam*, the singular nominal restriction is marked by accusative case, regardless of the case associated with the grammatical function of the phrase as a whole. The Classical Arabic case morphology is not preserved in contemporary Arabic.

- (i) a. *zayd-un qaraʔ-a ʔalāḥata ʃafara kitāb-an.*
 Zayd-NOM read-3MS three ten book-ACC
 ‘Zayd read thirteen books.’
 b. *kam kitāb-an qaraʔ-a zayd-un?*
 # book-ACC read-3MS Zayd-NOM
 ‘How many books did Zayd read?’

- (38) *tlētīn walad akal-(u) ?ālib gateau kāmīl.*
 thirteen boy ate-(3PL) pie cake whole
 'Thirteen boys ate a whole cake.'

Some of the Syrian Arabic speakers consulted for this work do not accept singular agreement in (38), but others do; it appears to be a point of idiolectal variation. But those that do also allow this optionality with *kam*, and the distinction between singular and plural tracks the distributive/collective distinction that Ouwayda describes for (38). In the absence of the plural suffix *-u* in (39), the sentence can only be asking how many boys each ate an entire cake of their own. A situation in which they shared a cake calls for plural agreement.

- (39) *kam walad akal-(u) ?ālib gateau kāmīl?*
 # boy ate-(3PL) pie cake whole
 'How many boys ate a whole cake?'

This observation predicts that singular agreement is incompatible with collective predicates such as those containing a reciprocal pronoun. That this prediction is correct is shown in (40).

- (40) *kam walad bi-ṣ-ṣaff *b-ya-ḥki / b-ya-ḥk-u inkilīzi*
 # boy in-the-class IND-3MS-speak / IND-3-speak-PL English
maʕ baʕd?
 with RECIP
 'How many boys in the class speak English with each other?'

The fact that the judgments for *kam* accurately track the judgments reported by Ouwayda about numerals in Lebanese lends support to the claim that *kam* is a numeral. One last point supports the claim that *kam* is a wh-numeral. *Kam* may occur with a 'scalar' noun such as *age*, *height* or *speed*, as seen in (41). In this case, it typically occurs without an overt restriction.

- (41) a. *kam ṣumr-u?*
 # age-his
 'How old is he?', lit. 'What is his age?'
- b. *kam ṭūl-u?*
 # height-his
 'How tall is he?', lit. 'What is his height?'

c. *kam surʕit l-muʕālaʒe?*

speed the-processor

‘How fast is the processor?’, lit. ‘What is the speed of the processor?’

Here, *kam* does not have an overt restriction, and at first glance, examples like those in (41) might look like association between ‘bare’ *kam* and a scalar term. But in all such cases, the remnant following *kam* does not constitute a complete sentence, unlike all the examples with ʔaddĒʃ discussed above. The phrase *ʕumr-u* ‘his age’ cannot be used alone as a sentence; it requires a predicate, that appears at first glance to be missing in (41). But the fact that these expressions require a predicate implicates *kam* as the predicate in these cases, the only other constituent present here. This makes sense, because these questions can be answered by a bare numeral, which is precisely what I claim *kam* signifies.

(42) a. *ʕumr-u tlētīn (sane).*

age-his [is] thirty (year)

‘His age is thirty (years).’

b. *ʕūl-u miya wa tmānīn (sentimētir)*

height-his [is] hundred and eighty (centimeter)

‘His height is one hundred and eighty (centimeters).’

c. *surʕit l-muʕālaʒe tlēt (GHz).*

speed the-processor [is] tlēt (GHz)

‘The speed of the processor is 3 (GHz).’

This pattern suggests that in the sentences in (41), *kam*, apparently together with a null restriction, is base generated in the predicate position and moves to the left clause edge, as illustrated in (43), where (43a) represents the base structure and (43b) the surface structure. The possibility of *kam* combining with a null restriction is apparently related to its occurrence as a predicate, rather than an argument, in examples like (41).

(43) a. *ʕumr-u [kam NP]*

b. *[kam NP]_i ʕumr-u t_i*

Note that in English, *how* may not be used in contexts like those illustrated in (41) for Syrian Arabic, neither alone nor in combination with *much* or *many*.

- (44) a. *How (much/many) is his age?
 b. *How (much/many) is his height?
 c. *How (much/many) is the processor's speed?

Here, only the general predicate wh-word *what* can be used, the same wh-word used in questions like *What is he?* (answer: a linguist, impetuous, etc.).

- (45) a. What is his age?
 b. What is his height?
 c. What is the processor's speed?

The fact that the use of *kam* in (41) corresponds to the use of the predicate wh-word *what* in (45) reinforces the claim that *kam* is the predicate in examples like (41) and that *kam* does not correspond to the English degree-interrogative word *how*. *How* corresponds to *?addēf*. *Kam*, on the other hand, is a wh-numeral with no counterpart in English. To express propositions like those in (41), English either uses the degree-interrogative *how* in combination with an adjective (*How old is he?*) or the predicate-interrogative *what* (*What is his age?*). No wh-numeral is available in English.

4 Two shared uses of *?addēf* and *kam*

Aoun et al. (2010) claim that *?addēf* may occur in situ, like *kam* and unlike what I have claimed here, citing examples like (46). This example differs from those cited above with *?addēf* in that the term *?addēf* functions as an argument of the verb *dafaʕ* 'pay', rather than a modifier of a scalar term. One of the arguments of *dafaʕ* 'pay' is the amount paid, and *?addēf* can apparently function as a wh-stand in for this argument.

- (46) *b-ti-txayyal innu dafaʕ ?addēf li-s-siyyāra?*
 IND-2MS-imagine that paid how.much for-the-car
 'How much do you think he paid for the car?'

That *?addēf* functions here as an NP representing an amount is supported by the fact that in such contexts, it may also occur in a prepositional phrase, and pied pipe the prepositional phrase to the clause edge, analogous to what *kam* does in examples like (33). The verb *ʃtara* 'buy' also has an amount argument, but introduces it with the preposition *bi-*, corresponding in this case to English 'for'.

- (47) *bi-ʔaddēf mona ftar-it s-siyyāra?*
 for-how.much Mona bought-3FS the-car
 'For how much did Mona buy the car?'

This appears to be a different use of *ʔaddēf* that the use as a degree modifier discussed in detail in section 2. It represents a use, however, that *kam* also has, since *kam* can replace *ʔaddēf* in the examples above with no change in meaning.

- (48) a. *b-ti-txayyal innu dafaʕ kam li-s-siyyāra?*
 IND-2MS-imagine that paid how.much for-the-car
 'How much do you think he paid for the car?'
- b. *bi-kam mona ftar-it s-siyyāra?*
 for-how.much Mona bought-3FS the-car
 'For how much did Mona buy the car?'

So while *ʔaddēf* is fundamentally a wh-degree modifier and *kam* fundamentally a wh-numeral, both may occur as arguments where they are interpreted as a variable over quantities, perhaps bound by a clause-initial covert interrogative operator. The relation between this use and their canonical uses described in sections 2 and 3 warrants further investigation.

I end this discussion by returning to a promissory note from section 2. The exclamative use that *ʔaddēf* has in sentences like (1), repeated in (49a), is shared by *kam*, as (49b) shows, though *kam* is perceived to represent a higher register here. In these examples, I gloss *kam* as 'how', since it does not have its usual wh-numeral use here.

- (49) a. *ʔaddēf mona fāṭr-a!*
 how Mona smart-FS
 'How smart Mona is!'
- b. *kam mona fāṭr-a!*
 how Mona smart-FS
 'How smart Mona is!'

This fact indicates that *kam* actually is able to bind a degree variable in its scope, like *ʔaddēf* does, but may only derive an exclamative reading, not an interrogative reading. While I cannot offer an explanation for the restriction of degree-modifying *kam* to exclamative contexts, this restriction suggests that

exclamatives and interrogatives are different in some crucial way, such that degree-modifying *kam* is admitted in the former but not the latter. The fact that these seem to have different logical forms justifies the efforts made in the presentation of data above to exclude the exclamative reading and focus on the interrogative reading. How the interrogative reading is related to the exclamative reading must await an investigation of its own.

5 Conclusion

The Syrian Arabic terms *ʔaddēf* and *kam* seem at first glance to perform a similar function, deriving a question asking about quantity. But the data discussed above indicates that they are very different syntactically and semantically, and that it is *ʔaddēf* that corresponds to the English wh-word *how* used as a degree interrogative. *ʔaddēf* is base generated in the left periphery of the clause and the rest of the clause is construed as a degree predicate. This degree predicate is derived by movement of a null operator from a degree-argument position to a position subjacent to *ʔaddēf*, as illustrated in (50a). *Kam*, on the other hand, is a wh-numeral that, like other numerals, combines with a singular count noun and moves to the left periphery, piep piping its restriction and potentially additional material, as illustrated in (50b). Only *ʔaddēf* is a degree operator; *kam* is syntactically a numeral and semantically a variable over numbers, perhaps bound by a covert clause-initial interrogative operator. See Hamblin (1973), Karttunen (1977) on the semantics of questions in general.

- (50) a. *ʔaddēf Op_d ʔar-it mona kitub_d ?*
 how read-FS Mona books
 ‘How many books did Mona read?’
- b. [*kam ktāb*]_i *ʔar-it mona t_i ?*
 # book read-FS Mona
 ‘How many books did Mona read?’

The similarity between *ʔaddēf* and English *how* is obfuscated to an extent by the possibility for *ʔaddēf* to be displaced from its scalar associate, something that is not possible in English. However, the discussion of superlatives in section 2 shows that this is not an idiosyncrasy of *ʔaddēf*, but rather a general property of degree constructions in Syrian Arabic. Arabic has a null operator that forms degree predicates subject to constraints on movement. English lacks this lexical item. Consequently, degree operators may appear at a dis-

tance from their scalar associate in Syrian Arabic but not English. From an English perspective, the distribution of ʔaddĒf is disorienting, but reduces to a very superficial difference between the two languages, namely the possibility of covert degree predicate abstraction in Syrian Arabic but not English. Arabic differs from English more substantially in possessing a wh-numeral, which to my knowledge is typologically uncommon.

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