

The Logical Quantifiers: Universal, Existential and Diacritical Demonstrative Noun Phrases in Classic Arabic

Sami A. Heeh *

ABSTRACT

From a structural perspective, this paper explores the extent to which certain words referred to as noun phrases (NPs) are used as quantifiers in Standard Arabic. It exceptionally excludes the logical quantifiers that have clear and constant references as quantifiers, such as the articles, numbers and numerals. The paper also examines exclusively the demonstrative pronouns (as Arab linguists traditionally refer to them on the prosodic level). From a semantic view, the article classifies the Semitic demonstrative pronouns as syncategorematic words that syntactically spread either anaphorically or cataphorically. It also subcategorizes them functionally as endophoric, exophoric and anaphoric proximal words. Unconventionally, the paper also exploits first order logic to re-categorize them as universal and existential references. Truth values and meaning postulates for the propositions in which the demonstrative NPs used, are drawn and calculated. For its precision and concision, the paper benefits as well as cites from The Noble Quran.

Keywords: Demonstrative NPs; syncategorematic words; anaphoric and cataphoric deictic; exophoric and endophoric references; first order logic; edible and editable specifications .

1. Introduction

Among the potential targets assigned for the contextualized words to meet are quantifying as well as qualifying the meaning intended. Generally speaking, lexemes, i.e. the words that carry meaning, can be classified into 'categorematic and syncategorematic expressions' (Kearns, 2000)^[1]. Categorematic phrases refer to the words that carry full meaning. They include namely verb phrases (VPs), noun phrases (NPs), adjective phrases (Adj-Ps) and adverb phrases (Adv-Ps). Syncategorematic words are, however, grammatical ones. They include namely prepositions, articles and inflection markers. These words do not carry full meaning by themselves. They can only modify meaning from a present tense to a past one, for instance. In English, the syncategorematic words 'the' and 'a' as in '*He scored the / a fourth goal*', for example, alter the meaning perceived from just one to four goals, respectively.

In natural languages, categorematic and syncategorematic expressions are governed -according to

Chomsky- by the 'right-hand-head rule' (Katamba, 1993)^[1]. This parameter allows for the native speaker of both Arabic and English to place categorematic words to the most right. The same parameter also allows the native speaker of English to insert the syncategorematic words initially, but the native speaker of Arabic to further them finally. For example, the compound noun '*seat-belt*' comprises two roots. Only can the most right-component 'belt' carry a full meaning. The former 'seat' attempts to modify the meaning assigned urgently some decades ago for the head word (HW) 'belt'. It describes where the 'belt' is. The Arabic counterpart that reads '*belt-for-safety*', strives for prescribing what the 'belt' is used for. Both HWs are placed to the right.

The logical quantifiers are among the syncategorematic words that try functionally to show the number. They include the definite and indefinite articles, NPs, pronouns and demonstrative pronouns. In English, the indefinite article 'a' or 'an' is used like 'one' as in '*We met a year ago*', for instance. However, the article 'some' replaces 'a' when the amount or number is unspecified or fairly large, such as in '*We met some years ago*' (see 'some' defined for English language learners at www.merriam.com). Similarly, the Arabic counterpart for

* Department of English, Palestine Ahliya University college, Palestine. Received on 17/4/2015 and Accepted for Publication on 20/6/2015.

some [ba&Dj] is used to express a limited or unspecified number (see *one* and *some* in quotes 1 and 2 below):

Quote⁽¹⁾ [wa-law nazzlna:hu &la: ba&Dj-il a&Djami:na] Ash-Shuara:' 26:198

[And even if We had revealed it to *one* among the foreigners..]

Quote⁽²⁾ [..la: taqtulu: Yu:sufa wa-Palqu:hu fi: ghaybiti-il jubi yaltaqituhu ba&Dju-as sayya:rati.."] Yu:suf 12:10

[.. "Do not kill Joseph but throw him into the bottom of the well; *some* travelers will pick him up.."]

Unlike the articles, the pronouns, such as *it*, *every*, *all*, *none*, *everything*, *everyone*, *that*, *this*, *these*, *those*, *here* and *there*, should be treated differently. Whereas the article attempts to quantify an individual argument that refers to a specific noun phrase (NP) or a proper noun (PN), the quantifier pronoun does not. For example, the arguments (*money*) and (*everything*) in the English

sentence '*To him, money means everything*' have different kinds of meaning. The former refers a specific category of concrete things that people use when purchasing things, the later has the potential to refer to anything or everything considered individually.

The logical pronoun quantifiers, whether personal or demonstrative, can be subcategorized into 'universal' and 'existential' ones (Kearns, 2000)^[2]. From a semantic perspective, the proposition, i.e. the sentence, must have a 'predicate' and some 'arguments' regardless of the style used. The predicate refers to what is said about the subject. Once the style is nominal, what is said about the subject can be referred to as a predicator or functionally as a VP or a subject complement. The argument is determined mainly by the predicate. In English, the predicates can extend from one-place argument to four-place ones. For calculating arguments and predicates, see table 1.

Table (1)

Examples	PREDICATES & arguments	Number of arguments
1. They should be here by noon.	HERE (t)	1
2. We can hardly blame her.	≈BLAME (w,h)	2
3. Omar must be speaking the truth.	SPEAK (o,t)	2
4. Alaa speaks Arabic fluently.	SPEAK (a,a)	2
5. I saw him take the money.	SEE ((I),TAKE (h,m))	1, 2

In the Arab world, the words that attempt quantification are introduced formally to students at early stages. However, most of the morphological as well as the syntactic rules are based on the efforts that Arab linguists paid during the eighth up to the tenth century. For example, the compound numbers, such as [ahad-a-3ashar-a] meaning (eleven), are introduced in the pre-intermediate stage. The learner is encouraged to pay attention to the syntactic markers that infix the numbers [ahad] meaning (one) and [3asharah] meaning (ten) when compounded. Needless to say, morphemes in Arabic must inflect also for the case and gender. Another example is the demonstrative pronouns, such as [tilka] and [hada:] both glossed as (this) in English. They are introduced as noun phrases that show proximal demonstration. The pupil has to perceive as well as use them as words that mirror a 'nearer', 'mid', and 'far' distance. Officially, they are fully neglected as pronouns

that have certain textual reference and spread on the syntactic level.

Up to present, the linguistic phenomenon is also seen and possibly investigated discretely in the Arabic speaking countries. A more holistic, comprehensible but original look at human language at the four levels should be launched. It is clear then that the human language cannot be explained at one level regardless of the others. The phonetic, morphological, semantic as well as syntactic factors should be considered, if not integrated, when studying a language. Originality subsumes that an Arab researcher should take into account the results of the previous investigations that Arab linguists conducted at a specific period of time. Novelty, however, urges the same researcher to cope with the findings of the recent studies carried out on some other modern languages. Universality of the linguistics applied and researched at all the levels (except for the syntactic one) also mandates that more

genuine studies based only on the earlier studies be conducted. Arabic has to be scaffolded by solid research that helps integrate the various linguistic levels. The findings of such studies may also help update the linguistic knowledge that is officially provided to the Arab learner.

From different linguistic perspectives, this paper analytically investigates the words used for quantification in Standard Arabic. It explores genuinely the extent to which Arabic syntax elevates the logical quantifiers. The article advances to list as well as evaluate the noun phrases (NPs) used for quantification. Then, it subcategorizes them into universal and existential ones. Meanwhile, the predicates and their arguments will be drawn, values will be calculated, and senses will be shown. The article also attempts to examine the demonstrative NPs as logical words striving for quantification. It hypothesizes that the Semitic demonstrative pronouns are not only used for proximal demonstration as official school textbooks display them to the Arab learner. The technique, in which such demonstrative pronouns spread in texts, will be checked, and the kind of meaning for each reference assigned will be identified. For its conciseness and preciseness, the paper benefits from the Holy Script of Islam (available at: www.quran.com). Transliterations are also provided for the native speaker of Arabic.

Methodologically, the paper benefits from both corpus linguistics and discourse analysis. Corpus linguistics (also referred to as text linguistics) can initially provide us with the words under investigation which are also known as 'key word in context' (KWIK). This word provision is very quick and convenient, thanks to the advances in modern technologies. It can also cater for the full text where the target words are used. This computational process is referred to as 'concordancing'. Besides, discourse analysis is applied basically in this paper. According to Schmitt 2002 pp 55-73), a researcher can approach texts from a pure 'linguistic' perspective. This approach is known as 'systemic functional linguistics' (SFL). The researcher can here identify the syntactic features of the text under investigation (Schmitt, 2002)^[1]. Therefore, the functions of the key word (KW) can be realized, and the structures in which the KWIK is used can be analyzed. This paper incorporates both

approaches.

The Universal Quantifiers: The Semitic Logical Word [kullu]

In The Noble Quran, the Semitic [kullu] is very frequent. It is used 236 times. On the syntactic level, the word [kullu] functions as a nominative subject and subject complement or as an accusative object and object complement (for a preposition). This morpheme can be roughly glossed as 'all', 'every' and 'everything' in modern English. As I already said earlier, this pronoun can (in principle) refer to any individual thing depending on the circumstance for which it is used. It always has as a 'variable reference' compared to other noun phrases (NPs) and proper names (PNs) which both have constant reference (Kearns, 2000)^[3].

In general, the logical quantifier may 'bind' a variable leading to a bound variable. For example, once the English quantifier 'every' secures the variable 'thing' or 'one', both the quantifier and the variable are 'bound' together. This would result in a 'closed' proposition. A closed proposition with a bound variable, such as 'everything' and 'everyone', is complete and has a truth value. However, the quantifier may not fasten a specific variable. In this case, the variable 'good man' in 'every good man', for instance is 'free' (Kearns, 2000)^[4]. Free variables lead to open propositions which have no truth values. From a semantic perspective, free variables, such as 'good man', cannot stand alone, as they are entirely incomplete by themselves.

In Arabic, the quantifier [kullu] meaning 'every' triggers both bound variables (though not on the graphemic level) and free variables. However, it occurs in closed propositions where the meaning relation between the predicate and the quantifier argument is always universal. That is to say, the logical quantifier expresses meaning though the argument does not necessarily exist at the same time. For quotes 3, 4, 5, and 6 below, the predicates and their arguments are drawn in table 2.

Quote⁽³⁾ [Pallaḏi: ahsana kulla shay'in khalaqahu wabadaḥa khalaqa al-ḥinsani min ti:nin] As-Sajdah 32:7

[Who perfected everything which He created and began the creation of man from clay.]

Quote⁽⁴⁾ [Ḥila: Allahi marjiḥikum wa-hwa Ḥla: kulli shay'in qadi:riun] Hu:d 11:4

[To Allah is your return, and He is over all

things competent.]

Quote⁽⁵⁾ [thumma kuli: min kull-ith thamara:ti fas-sluki: subula Rabili ðulula..] Al-Nahl 16:69

[Then eat from all the fruits and follow the ways of

your Lord laid down [for you..].

Quote⁽⁶⁾ [.. wa-ja&lina: min-al ma:ʔi kulla shay'in hayyin..] Al-Anby:a' 21:30

[..and made from water every living thing..]

Table (2)

<i>Quotes — where the logical quantifier is used:</i>		<i>Predicates</i>	<i>Arguments</i>
(3)	[Who perfected everything which He created..]	PERFECT	(God, x)
(4)	[..and He is over all things competent.]	COMPETENT	(He, x)
(5)	Then eat from all the fruits..]	EAT	(bees, x)
(6)	[..and made from water every living thing?..]	MAKE FROM WATER	(We, x)

From a semantic perspective, the quantifier argument must be referred to as an X as it is variable. To calculate the values of these X-variable quantifiers, the symbol \forall is used. Therefore, the semantic values for the universal variable quantifiers depicted in table 2, can be figured as:

Formula⁽¹⁾ $\forall(x)$ PERFECT (God, x)

Formula⁽²⁾ $\forall(x)$ COMPETENT (He, x)

Formula 1 can be interpreted as: 'For any value of X God perfected that X whatever that X is'. Formula 2 can be interpreted as: 'For every value He (Allah) is competent over any X whatever X might be'.

Formula⁽³⁾ $\forall(x)$ if FRUITS(x) \rightarrow EAT (bees, x)

Formula⁽⁴⁾ $\forall(x)$ if LIVE(x) \rightarrow MAKE FROM WATER (We, x)

Formula 3 can be interpreted as: For any value of X if X is fruits, then bees can eat from that X. Similarly, formula 5 reads: For every value of X if X is living, then We (Allah) makes that X from water. Formulae 1 and 2 show a closed proposition whereas formulae 3 and 4 mirror an open proposition.

Contradiction is also a logical term. From a semantic view, a proposition must be analytic and entail contradiction. Elsewhere, it is a combinatory one. Combinatory propositions are dismissed from a semantic perspective, as they do not analyze, but synthesize knowledge. Epistemologies, i.e. pieces of knowledge, can be 'linguistic or general' (Hurford, 2007). This may help explain the epistemology, i.e. knowledge, one gets when consulting a dictionary. This knowledge is related to or about meaning and words. When referring to an encyclopedia, one will get some knowledge about general

life. In this sense, dictionaries attempt to analyze meaning whereas other books try to synthesize knowledge. On the syntactic level, contradiction is, however, carried out by negation. Quotes 7 and 8 below entails contradiction:

Quote⁽⁷⁾ [ʔin kullu nafsin lamma: ʕalayha: hafiðun.] At-Tariq 86:4

[There is no soul but that it has over it a protector.]

Quote⁽⁸⁾ [ʔin kullu man fi: as-samawa:ti wa-alarid̥i ʔilla: a:ti: ar-Rahma:ni ʕabdan.] Maryam 19:93

[There is no one in the heavens and earth but that he comes to the Most Merciful as a servant.]

The predicates as well as their arguments used in quotes 7 and 8 are drawn in table 3 below. Quotes 7 and 8 can be figured as follows (see formulae 5 and 6):

Formula⁽⁵⁾ $\forall(x)$ if \sim SOUL(x) \rightarrow \sim HAVE OVER (protector, x)

Formula⁽⁶⁾ $\forall(x)$ if \sim ONE(x,p) \rightarrow \sim COME TO (x, MM, as s)

Formula 5 can be interpreted as 'For any value of X if X is NOT a soul, then that X has NOT a protector'. This interpretation is equivalent to 'Every soul has a protector over it'. Similarly, formula 6 reads 'For every value of X if X is NOT someone in the heavens and earth, then that one is NOT coming to the Most Merciful as a servant'. This interpretation is equal to 'Everyone comes to the Most Merciful as a servant'. In quotes 5 and 6, contradiction is highlighted by [ʔin] which is sometimes referred to as an 'extra' morpheme in some Quranic interpretations, such as these of Al-Qurtubi's of Al-Jalalayns' (both available at www.quran.islam.com). The verses that employ such a negation marker read as 'There

is no one', but perceived as 'Everyone' by the native listener or reader of Arabic.

Table (3)

<i>Quotes — where the logical quantifier is used:</i>		<i>Predicates</i>	<i>Arguments</i>
(7)	[There is no soul but that it has over it a protector].	~ SOUL ~ HAS OVER IT	(x) (x, protector)
(8)	There is no one in the heavens and earth but that he comes to the Most Merciful as a servant.]	~ ONE ~ COME TO	(x, place) (x, MM, as s)

The Unlikely logical Quantifier [jami:ʕun]

To proceed, the Arabic [jami:ʕun] also meaning 'all' or 'every', is a potential quantifier. A close look at the holy Quran reveals that the related forms namely [jami:ʕan] and [ajmaʕi:n] are relatively frequent. However, the former is often used as an adverb of manner on the functional level. The later which has the plural form and meaning, too, is always used as an endorsement element or an opposite on the structural level. These words are not used as universal quantifiers. Instead, the personal pronoun arguments are used to attempt quantification. It is probable that the holy Script of Islam accommodates stylistically both forms as endorsing elements only (see quotes 9 and 10 below). Constant variables, carried out by quantifying personal pronouns, are dismissed from our discussions in this paper.

Quote⁽⁹⁾ [wa-ʔanjayNa Mu:sa: wa-man maʕahu ʔajmaʕi:na.] Ash-Shu'ara:' 26:65

[And We saved Moses and those with him, all together.]

Quote⁽¹⁰⁾ [yawama yabʕathuhmu Allahu jami:ʕan fayunabiʔuhum bi-ma: ʕamilu: ..] Al-Muja:dilah 58:6

[On the Day when Allah will resurrect them all and inform them of what they did..]

The Existential Quantifiers

The other logical quantifier, the existential one, is also expressed by some syncategorematic words such as articles, prepositional phrases and demonstrative pronouns. Unlike their counterparts the universal quantifiers, the existential quantifiers do explicitly express 'existential commitment'. A proposition with an existential quantifier suggests there should be at least one

X, i.e. one thing, of the kind specified. These propositions, whether open or closed, are usually written as $\exists x$ and interpreted as 'There is one X' or 'There is at least one thing X'. In English, this formula is used to translate NPs with 'a/an', 'some', and 'there' (Kearns, 2000)^[5].

The Arabic Logical Quantifier [baʕdu]

In The Noble Quran, the grammatical word [baʕdu] is also fairly frequent. Various forms stemmed from this input word are used 87 times. Functionally, this word is used as subject, subject complement, object, object (for the preposition), and as endorsement element. In quotes 11 to 14 below, the word [baʕdu] is referred to as a logical quantifier. The predicates as well as their arguments are also drawn immediately in table 4 below.

Quote⁽¹¹⁾ [.. qa:la "kam labithta?" qa:la "labithtu yawman ʔaw baʕda yawmin".. Al-Baqarah 2:259

[..He said, "How long have you remained?" The man said, "I have remained a day or part of a day"..]

Quote⁽¹²⁾ [wa-ʔimma: nu:riyannaka baʕda ʔalaði: naʕiduhum..] Yu:nus 10:46

[And whether We show you some of what We promise them,..]

Quote⁽¹³⁾ [..la: taqtulu: Yu:sufa wa-ʔalqu:hu fi: ghaya:bati-al jubbi yaltaqituhu baʕdu as-sayya:rati..] Yu:suf 12:10

[..Do not kill Joseph but throw him into the bottom of the well; some travelers will pick him up..]

Quote⁽¹⁴⁾ [wa-ʔið ʔasarra an-nabiyyu ʔila: baʕdi ʔzwa:jih..] At-Tahri:m 66:3

[And when the Prophet confided to one of his wives a statement..]

Table (4)

Quotes —where the logical quantifier is used:	Predicates	Arguments
(11) [.. "I have remained a day or part of a day" ..]	REMAIN	(I, day) or (x)
(12) [.. We show you some of what We promise them,..]	SHOW	(We, you, x)
(13) [.. some travelers will pick him up..]	PICK UP	(x, him)
(14) [..when the Prophet confided to one of his wives a statement;..]	CONFIDE TO	(prophet, x, s)

Formula⁽⁹⁾ $\exists x \& \text{TRAVELER}(x) \& \text{PICK UP}(x, \text{him})$

Formula⁽¹⁰⁾ $\exists x \& \text{WIFE}(x) \& \text{CONFIDE TO}(\text{prophet}, x, s)$

Formula 9 can be interpreted as: 'There is such an X and that X has to be a traveler and that X must pick him (Joseph) from the well'. Formula 10 also reads as: 'There is at least one X and that X is a wife and Prophet Muhammad confided that wife (x) a statement'. From a first order logical perspective, formulae 7 to 10 use a quantifier that welcomes the existence of at least one free variable NP.

So far, the propositions that have been referred to in this section are real or factual ones. Real propositions are straightforward and have a 'causal relationship' between the predicate and its argument (Kearns, 2000)^[6]. On the structural level of The Noble Quran, the word [ba&du] is sometimes used in an 'imaginary', i.e. not real, situation in which [wa-law] meaning (and-even if) heads some verses (Azar, 2006). The Arabic [wa-law] is a linking item expresses a 'hypothetical' or pseudo case which is unlikely to happen due to the existence of other facts. Quote 15A and 15B below presents this proposition.

Quote^(15A) [wa-law nazzalna:hu &la: ba&du-il &Pa&jami:na.] Ash-Shuara:' 26:198

[And even if We had revealed it to one among the foreigners]

Quote^(15B) [wa-law taqwwala &alayna ba&duail &Paqa:wi:li,..] Al-Ha:qqah 69:44

[And if Muhammad had made up about Us some [false] sayings,..]

Therefore, the logical quantifiers 'one' and 'some' in quotes 15A and 15B can be interpreted as: 'There is no such an X and that X is a foreigner and We revealed it (The Noble Quran) to that X', and 'There is no one X and that X is just a few sayings and Mohammad made up that X about Us (Allah). Indeed, the conditional word [and-law] has initially furthered a contradiction and already

blocked any existential quantification for 'foreigners' and 'saying'. In quotes 15A and 15B, a null quantification is facilitated by the linking word [law], so the whole condition in which the existence of 'foreigners' and any 'saying' is hypothesized, is already constrained from a logical perspective.

The atrophic word [bi&du]

The Semitic [bi&du] is also used as a logical quantifier. On the morphological level, both [bi&du] and [ba&du] are cognates as they both descend from the same form. This morpheme is also allied with [ba&du] in relevance to meaning. It is used to refer mainly to a number of years that probably extend from three to nine, so it can be roughly glossed as 'several', 'a few' or 'not many' in modern English. In this sense, it is a syncategorematic word striving for narrowing the number which its counterpart [ba&du] has already widened to 'some' or 'many', i.e. more than ten. This quantifier is, however, not frequent. It has been used only twice in The Noble Quran. Quote 16 displays [bi&du] as an existential quantifier:

Quote⁽¹⁶⁾ [..fa-&Pansa:hu ash-shayta:nu &ikra rabihi fa-labitha fi: as-sijni bi&du si:ni:na] Yu:suf 12:42

[..But Satan made him forget the mention [to] his master, and Joseph remained in prison several years.]

The proposition in which the quantifier [bi&du] is used can be figured as in formula 11 below:

Formula⁽¹¹⁾ $\exists x \& \text{A FEW YEARS}(x) \& \text{REMAIN}(j, \text{Loc-P}, x)$

Formula 11 can be interpreted as: 'There is at least one X and that X is a few years or not many years & Joseph remained in that place (prison) that X (that number of years)'. The Arabic predicate [MAKATHA] meaning REMAINED triggers both a 'location' phrase (Loc-P) 'specification' and an adverb phrase (Adv-P) specification that shows time (Baker, 1995). The former,

i.e. (in prison) is obligatory whereas the later is optional. This helps us understand why the quantifier [biʤEa] is unspecific in duration. Indeed, where Joseph stayed, not for how long, is what accounts.

The Exophoric vs. Endophoric and Anaphoric vs. Cataphoric Demonstrative NPs

The demonstrative pronouns, such as 'this', 'that', 'these' and 'those', can be used to show proximity in place and number. Whereas 'this' displays one thing that is near in space, 'that' points out to one thing that is relatively far away from the speaker. In more recent genres such as English for Academic Purposes (EAP) for example, writers use the demonstrative pronouns for 'hedging' (Dudley-Evans, 1999). By using the demonstrative pronouns 'this' and 'these', writers are aligning or putting themselves with the claim under discussion. By using 'that' and 'those', the writer is distancing himself/ herself from the claim. Writers also use 'this' and 'these' possibly to advert their own works, and 'that' and 'those' to accredit colleagues' works.

From a pragmatic view, 'person, place' and 'time' deictics, i.e. references, are used differently to assign meaning for certain NPs (Schmitt, 2010)^[2]. These pronoun references step either backward or forward to shoot the NPs that they aim to shoot. On the textual level, they can be anaphoric and cataphoric. Note in example 1 how the demonstrative pronoun 'those' mirrors a neutral position which distances the writer from using metals, and how the demonstrative pronoun spreads in an anaphoric, i.e. backward, way. Note also in example 2 how the writer expresses his / her own opinion by 'this', and how the pronoun expands in a cataphoric, i.e. forward, way (both examples are taken from www.dictionary.com).

Example¹ The *aluminum parts* are much lighter than *those* made from steel.

Example² I can only say *this*: *it* (your mobile phone) wasn't here yesterday.

On the semantic level, demonstrative pronouns can also be endophoric or exophoric. The pronoun may refer to a certain element in the structure. In this case, the deictic, i.e. reference, refers to a 'locutionary', i.e. a stated linguistic element, so it is referred to as an endophoric one. Sometimes the pronoun does not refer to a certain

word in the discourse. Instead, it refers to an 'illocutionary', i.e. non-linguistic, element that is not stated verbally but intended (Schmitt, 2010)^[3]. That is to say, the pronoun refers to the meaning conveyed in the clause. Conventionally, the pronoun is called exophoric. In example 1 above, the anaphoric pronoun 'those' can also be classified as endophoric because it refers to the functional word 'parts'. In example 2, the cataphoric pronoun 'this' can be categorized as an exophoric one, as it refers to the whole idea 'it wasn't here yesterday'. One needs to keep in mind that meaning is nonlinguistic. It is just a 'sense' or 'denotation' (Kearns, 2000)^[7] that resides somewhere in our heads.

The Semitic Demonstrative NP [haða:]

In Arabic, demonstrative pronouns are not different from their counterparts in English. For proximity, Arabic furthers a medial case, which is neither close nor far away. Like other categories of speech, demonstrative pronouns are also marked for gender and a dual case. In the holy Script of Islam, the demonstrative pronouns are so frequent. Therefore, only two of them will be examined in the section below.

The Semitic [haða:] meaning 'this' or 'that', is so frequent in The Noble Quran. It is used 182 times. A close look at the verses where the pronoun is used reveals that [haða:] can spread cataphorically and anaphorically. In quotes 17A below, the reference 'this' structurally seats after the NP 'my shirt' in the Arabic text. In quote 17B, it takes place before the NP 'a learned magician':

Quote^(17A) [iðhabu: bi-qami:si haða ʔila: abi,..] Yu:suf 19:93

[Take this, my shirt, and cast it over the face of my father;..]

Quote^(17B) [qa:la ʔa-malʔu min qawmi firʔawna ʔinna haða: la-sahirun ʔali:mun] Al-Ara:f 7:109

[Said the eminent among the people of Pharaoh, "Indeed, this is a learned magician]

From a syntactic view, the pronoun [haða:] can be either endophoric or exophoric and cataphoric or anaphoric. Note how the pronoun 'this' is used twice in quote 18A. The former is assigned for the functional word 'my husband'. In this sense, the reference is endophoric and spreads cataphorically. The later is exophoric as it refers to the whole previous full idea

expressed by Sarah, Abraham's wife. It negotiates the meaning of the exclamatory question of 'giving birth at that age'. Also note how the pronoun '*this*' (in quote 18B) spreads cataphorically to the contextualized word '*enemy*'. In this sense '*this*' is an endophoric reference.

Quote^(18A) [qa:lat ya: waylati: ʔa-ʔalidu wa-ana ʔaju:zun wa-haða: baʔli: shaykhan? ʔinna haða: la-shayʔun ʔaji:bun!] Hu:d 11:72

[She said, "Woe to me! Shall I give birth while I am an old woman and this, my husband, is an old man? Indeed, this is an amazing thing!]

Quote^(18B) [faqlNa: ya: Adamu, ʔinna haða: ʔadwwun laka wa-lizawjika..] Taha 20:117

[So We said, "O Adam, indeed this is an enemy to you and to your wife..]

Traditionally, Arab linguists categorize demonstrative pronouns as NPs because they behave grammatically as NPs on the syntactic level, on one hand. On the other, the investigations that examined their denotations beyond proximity on the semantic level are rather poor, I am afraid. There is some evidence that the demonstrative NPs are used for quantification from a first order logic perspective.

Quote⁽¹⁹⁾ [ʔinna Allaha Rabbi: wa-Rabbukum fa-ʔbudu:hu haða: sira:tun mmustaqi:mun] AL-Imra:n 3:51

[Indeed, Allah is my Lord and your Lord, so worship Him. That is the straight path.]

In quote 19, the predicate PATH is assigned for the only one argument '*that*'. The proposition where the predicate and its argument is used, can be figured as in formula 12 below:

Formula⁽¹²⁾ $\exists x \& \text{PATH}(x) \& \text{STRAIGHT}(x) \leftarrow (\cdot) \text{WORSHIP}((y), \text{Him})$

Formula 12 can be interpreted as 'There is one X and that X is a path and that X is straight, so worship Him, i.e. Almighty God. As a result, the word [haða:] can probably be subcategorized as an existential reference attempting to quantify some 'paths' or 'approaches' to Almighty God . .

The Arabic Demonstrative NP [tilka]

The Arabic demonstrative NP [tilka] is less frequent in the Holy Script. It is used to refer to both singular and plural but feminine NPs. Once the demonstrative [tilka] refers to a dual, the syntactic marker [-ma] is suffixed resulting in [tilkuma] roughly glossed as '*these both*' in

modern English. Elsewhere, this word is free. Like its masculine counterpart [haða:], the word [tilka] can be an endophoric and exophoric NP. In quote 20A, it spreads anaphorically to express the idea of '*unfair division*'. In quote 20B, it also spreads anaphorically to refer to '*fast days during and after hajj*'.

Quote^(20A) [ʔalakumu að-ðakaru wa-lahu ʔal-ʔuntha ʔ tilka ʔithan qismatun ʔi:za:] An-Najm 53:21-22

[Is the male for you and for Him the female? That, then, is an unjust division.]

Quote^(20B) [.. fa-siya:mu thalathati ayyamin fi:l hajji wa-sabʔatin ʔiða rajaʔtum tilka ʔashratun ka:milatun ..] Al-Baqrah 2:196

[..then a fast of three days during Hajj and of seven when you have returned [home]. Those are ten complete [days]..]

In quote 20B, the proposition verse '*Those are ten complete*' insists that [tilka] meaning '*those*' be a quantifying word. It can be figured as (see formula 13):

Formula⁽¹³⁾ $\exists x \& \text{FAST DAY IN HAJJ}(x) \& \text{TEN}(x) \& \text{COMPLETE}(x)$

Formula 13 reads as: 'There is at least one X and that X refers to some fast in Hajj and that X must be some days and that X must be full ten days'. Note, how the proposition quantifies (if not quantitatively calculates) time whereas the previous verse qualitatively prescribes, i.e. tells how, the fast days should be distributed.

The Exceptional Emblematic, Antephoric Quantifiers: [ða:lika] and [tilka]

The demonstrative NPs, namely [ða:lika] and [tilka] also occur at the beginning of a considerable number of Quranic episodes (surats). The episodes where both demonstrative words are used, usually start (but not exclusively) with some Arabic runes. These graphemes sound enigmatic. Therefore, scholars of Islamic studies would rather refer to these letters as one of the miracles of the Quran, and none but Allah alone knows their meanings. These puzzling graphemes take place initially in either open propositions (see quote 21A, for example) or closed propositions (see quote 21B, for instance).

Quote^(21A) [ta, si:n, tilka ʔa:ya:t-ul qur'a:ni wa-kita:bin mubi:nin] An-Naml 27:1

[Ta, Seen. These are the verses of the Qur'an and a clear Book]

Quote^(21B) [ta, si:n, mi:m ⊕ tilka Ṕa:ya:t-ul kita: bil mubi:ni ⊙] Al-Qasas 28:1-2

[Ta, Seen, Meem ⊕ These are the verses of the clear Book ⊙]

Whether the verse, i.e. proposition, is closed or open, the episode sustains only [ḏa:lka] and [tilka] to head certain words namely [*the Book*] and [*verses of the Book*], respectively. Both pronouns can also be glossed as '*this*' and '*these*' in English. Almost exclusively the former refers to the '*Book*', i.e. The Holy Quran. The later exclusively stands for '*the verses of The Noble Quran*'. The Arabic equivalent NP for '*book*' is [al-kita:bu]. It is either a definite, singular but masculine common noun phrase (CNP) or a proper noun phrase (PNP). As a CNP, it can be added to any other common noun. Once [al-kita:bu] is defined by [al] meaning (the) in English, it is a PNP, and can only refer to The Noble Quran itself. The Arabic equivalent for 'verses', [Ṕa:ya:tu], is a definite (definiteness is achieved by addition to the Book), plural but feminine CNP.

As they appear at the beginning of the Quranic episodes, both demonstrative NPs act as a discourse marker. To be exophoric is unlikely because of the absence of a certain textual content to comment on or to stand for yet. To be endophoric is also unlikely due to the absence of explicit NPs (except for the explicable runes) to adduce. Having a close look at the discourse that follows some identical and semi-identical initial runes reveals that 'The Holy Script' uses the demonstrative words to introduce some concepts and notions on the textual level. The context that follows both runic formulae [alif-la:m-meem] and [alif-l:meem-ra], for instance, and the successive demonstrative pronouns [ḏa:lika] and [tilka], highlights the concept, i.e. full understanding, of '*guidance*' and '*certainty*', respectively (see Baqara 2:2, AL-Imra:n 3:3, Ar-Ra&d 13:2, and Luqma:n 21:2).

As they attend initially on the discourse level, these demonstratives are potentially contextual. They incline to negotiate some notions, i.e. 'ways of understanding', concepts, i.e. 'full understandings', and probably some situations (see how the English Webster's dictionary defines the terms 'notion' and 'concept' at www.merriam.com). On the semantic level, the runic morphemes (if at all) incline to codify some deep,

abstract epistemologies whereas the demonstrative references possibly tend to signify that knowledge. In quotes 22A and B, the notions of '*warning*' and '*good news*' are stated explicitly in the verses 2 and 5&6, respectively (see table 5 for quotes 22A and 22B).

Quote^(22A) [alif-la:m-ra, tilka Ṕaya:t-ul kita:b-il haki:mi] Yu:nus 10:1

[Alif-Lam-Ra. These are the Verses of the Book..]

Quote^(22B) [alif, la:m, ra, tilka Ṕaya:t-ul kita:b-il mubi:ni] Yu:suf 12:1

[Alif, Lam, Ra. These are the verses of the clear Book.]

Verses 22A and B look almost identical on the graphemic level except for the words, namely [haki:m] meaning 'wise' and [mubi:n] meaning 'clear' or 'obvious'. These words function as adjectives which describe the word [al-kita:bu] referring to the Holy Scrip. As they denote the notions of 'wisdom' and 'clearness', they would let the door open for the demonstrative pronouns placed before them to negotiate their meaning. As quotes 22A and B are almost symmetrical on the graphemic level, formula 14 is drawn for both:

Formula⁽¹⁴⁾ $\square \exists x \& [\text{Alif-Lam-Ra}]x \& \forall x \& [\text{VERSES OF THE BOOK}]x$

$\& (\Delta) \exists x \& \text{WISE \& CLEAR NEWS BE COME } (x)$

Formula 14 can be interpreted as: 'Necessarily, there is one X and that X is [Alif-Lam-Ra]. And for every value, X is the [verses of the Book]. And (possibly), there is at least one X, and that X is some 'wise' and 'clear news' assigned for discussion later. This interpretation suggests that the initial alphabets should be existential quantifiers because of their clear meanings as runic references. It also argues implicitly that the term [verses] should be perceived as 'clues', 'hints' or 'indications' rather than be [verses] as in the English translated version referred to above. They can be categorized as universal (but contextual) quantifiers due to their intricate, open 'recursion' and 'complementary distribution' (Katamba, 1993)^[2]. Finally, the formula presents the contextualized NP and VP references as potential, but existential quantifiers due to their frequent recession to further point in the content itself.

These demonstrative NPs also raise a substantial question about describing them traditionally as noun phrases, though they fully behave as referential

demonstrative pronouns. Not only do they signal cataphorically (forward) for some knowledge to come, but they also inform emblematically how such knowledge will be. Table 5 below introduces few verses that follow quotes 22A and B. Quote 22A suggests that 'wisdom' entails 'WARNING' and 'GIVING GOOD NEWS' to people. As quote 22B heads a full narration, i.e. story, it

probably argues for 'CLEARNESS'. Indeed, the plot in Joseph's story highlights to a great extent the role of the 'obvious' evidence in telling the truth. It also begins with a dream and ends with a 'clear' fulfillment of that dream. In formula 14, the symbol (Δ) is used to open the door for other probable interpretations.

Table (5)

<i>Quotes —the nominated quantifier that is used on the discourse level:</i>		<i>Predicates</i>
(22A)	["Warn mankind (of the coming torment in Hell), and give good news to those who believe..] Yu:nus 10:2	WARNING & GIVE GOOD NEWS
(22B)	[..He said, "O my son, do not relate your vision to your brothers.. ⁵ And thus will your Lord choose you and teach you the interpretation of narratives and complete His favor upon you and upon the family of Jacob .. ⁶] Yusuf	DO NOT & SOME GOOD NEWS

The Atrophic Demonstrative NP [thamma]

The archaic demonstrative NP [thamma] meaning 'here' and 'there' is also a potential quantifier. In Standard Arabic, this word is used to refer to a place that can be closed, far away, or even anywhere. This unspecific, proximal word would allow for a native speaker of Arabic to replace it with [huna:] meaning 'here', [huna:ka] and [huna:lika] both meaning 'there'. On the stylistic level, the Holy Script of Islam advances only [thamma] and [huna:lika]. On the syntactic level, both NPs function as adverbial phrases that show place. Variable 'edacity' enables some VPs to elicit some essential arguments to convey meaning (Kearns, 2000)^[8]. From a semantic perspective, both demonstrative NPs argue for some VPs that each triggers a location phrase (Loc-P). In quote 23A and B, the predicates TURN and LOOK bring about the demonstrative word [thamma] which sounds an obligatory, edible element. In quote 23B, the Arabic VP [raʔayta] meaning (you saw) repeats itself twice. In the first, it is perceived as 'If you look around'. In the second, it means 'Then immediately you will see pleasure and great dominion'. Variable edacity permits the Semitic VP to be an intransitive verb phrase (see the first part in quote 23B). The same variable edacity, however, authorizes the same VP to be a transitive verb (see the second part in quote 23B). This may help explain why the

VP [raʔa:] can be a sensory or a cognitive one. Once the verb [raʔa:] is related to a visual sense, it is either di-transitive or even tri-transitive in Standard Arabic.

Quote^(23A) [..fa-ʔaynama: tuwallu:, fa-thamma wajhu Allahi..] Al-Baqarah 2:115

[..So wherever you [might] turn, there is the Face of Allah..]

Quote^(23B) [wa-ʔiða: raʔayta, thamma raʔayta naʕi:man wa-mulkana kabi:ran] Al-Insa:n 76:20

[And when you look there [in Paradise], you will see pleasure and great dominion.]

In quote 24A and B, the predicates OVERCOME, BE DEPASED, BE TESTED and BE SHAKEN, respectively, do not cause but may activate a place specification. The variable 'editability', i.e. edacity, of some VP predicates would allow for them to generate some optional, but enough arguments. Therefore, the demonstrative NP [huna:lika] sounds optionally edible.

Quote^(24A) [fa-ghulibu: huna:lika wan-qalabu: saghiri:na.] Al-Ara:f 7:119

[Pharaoh and his people were overcome right there and became debased.]

Quote^(24B) [huna:lika ʔubtuliy-al muʔminu:na wazulzilu: zilza:lan shadi:da] Al-Ahza:b 33:11

[There the believers were tested and shaken with a severe shaking.]

In quotes 23 and 24, the demonstrative argument (whether obligatory or optional) should be referred to as existential NP. Quotes 23B and 24B can be figured as:

Formula⁽¹⁵⁾ $\exists x$ & BE IN PARADISE(x) & iff LOOK AT(you, x) \rightarrow SEE(you, pleasure, great dominion)

Formula⁽¹⁶⁾ $\exists x$ & PLACE(x) & Δ FAR AWAT(x) & BE TESTED & SHAKEN SEVERLY IN (believers, x)

Formula 15 can be interpreted as: 'Necessarily there is one X and that X is paradise and if and only if you look at that X, then you will see pleasure and great dominion'. Formula 16 can similarly be interpreted as: 'Certainly there is one X and that X is a place and that X is (possibly) far away and believers were tested and shaken severely in that X. The demonstrative NP [thamma] can only take place medially (see quote 23A and B). The demonstrative NP [huna:lika] can occur both initially and finally (see quotes 24A and 24B, respectively). As both are assigned to refer to certain words in the text, they sound endophoric. . .

Conclusions and Implications

Quantification is expressed by some words referred to as demonstrative NPs in Standard Arabic. From a morphological perspective, demonstrative NPs are mostly grammatical morphemes that function as subject, subject complement, object, preposition complement or adverbial. From a syntactic perspective, they can spread backward or forward in reference to some other textual elements. The elements they refer to can be linguistic or nonlinguistic. They are best categorized as endophoric when they refer to certain word forms in the text. They are exophoric if they are used to comment on the meaning depicted in a sentence or a full paragraph. Elsewhere, they are exceptionally antephoric or emblematic deictics, as they initially indicate the context under discussion. Their referential context can be notional, conceptual or situational.

In natural language, a quantifier is a syncategorematic word that helps modify meaning. Unlike its counterpart, the categorematic word which carries a full meaning, the syncategorematic one does not carry meaning by itself. It can only change the number from singular to plural, for instance. It may also be assigned to signal for or exemplify something. From a semantic view, it can also attempt to quantify the degree, amount, place and time to

some or great extent. From a logical perspective, the element used for quantification must mirror a case that is necessarily either specific and existential or general and possibly non-existential. This sub-categorization may help explain why quantifiers vary a lot in one natural language.

In Arabic, the words [kull] and [jami:ʕun] can be universal quantifiers, as they both refer to anything or anyone that is necessarily non-existential. Only is [kull] advanced on the stylistic level of The Noble Quran as a universal quantifier. Negative values are also carried out by [ʔin] which is perceived as an 'empty' morpheme by the native speaker of Arabic. The universal quantifier [jami:ʕan] is mostly used as an adverb of manner or as an endorsement element. Arab semanticists need to examine the third person pronouns namely [hu:wa, hi:ya, huma, and hum] meaning, 'he', 'she', 'they both' and 'they all', respectively. They are very frequent in the Holy Script. Numbers namely [ahadu] and [ahadukumu] meaning 'anyone' and 'anyone of you' may also attempt to quantify. For example, the directive verse [qul 'hu:wa Allahu ahadu] meaning as [Say, "He is Allah , [who is] One, .."] Al-Ikhla:s 112:1, entails the universal quantifier [hu:wa], the existential NP [Allah] and the existential quantifier 'one'. The verse reads 'For every value of He, He refers to Allah who exists as an only one (God). Indeed, that is monotheism.

The overall quantifier [baʕḏu] and its cognate [biḏʕu] are existential quantifiers. The former is very frequent, and it tends to quantify only NPs. The later is very limited to quantifying years. It shows some frequencies extending from 3 to 9 years. Linguists should also check the preposition [min] meaning 'some' as a preposition that attempts to quantify. The Noble Quran always presents the word [Allahu] as a definite existential NP. Sometimes, the Holy Script uses the preposition [min], preceded by [ma:] and followed by [ʔila:hin] in a nominal style referred to as 'the exclusive style'. The NP [ʔila:hin] is identified as an indefinite NP. Does [min] mean 'some'? And does it try to explore quantity to the bare minimum?

Finally, the Semitic [haða:] and [tilka] are so frequent in The Noble Quran. Traditionally, they are referred to as demonstrative NPs, showing proximity. From a syntactic perspective, they can also spread in a cataphoric or

anaphoric way. From a semantic view, both can be endophoric or exophoric references. Both can only be existential NP references. The obsolete [thamma] is also used to express undefined proximity. Differently, the Arabic [ðā:lika] and [tilka] are used at the beginning of some Quranic episodes often start with some enigmatic runes probably as an emblem for the notions or concepts under presentation in the episode itself. These emblematic, antephoric demonstrative NPs tend to be existential. Therefore, Arab linguists should explore the demonstrative NPs beyond the notion of proximity.

To imply for research and pedagogy, scholars need to conduct more studies on the words that function as quantifiers and possibly other aspects in Arabic. Any linguistic study has to integrate the levels for more holistic and accurate results. They can make use of a wide

variety of contemporary approaches to language study. These approaches can be purely linguistic or sociolinguistic. They can also benefit from modern technologies when collecting their data by concordancing corpora or when analyzing the data collected. Corpus linguistics is a promising area to explore and exploit. Discourse analysis is a good research method that may help unearth the linguistic features of the linguistic phenomenon under investigation. Teachers of Arabic language need to give some room for both the semantic characteristic features as well as the grammatical functions of the Arabic lexemes, i.e. words in context, at the expanse of the syntactic and morphological properties of these words. Finally education policy-makers should also encourage some original studies that help elevate Arabic.

REFERENCES

- Al-Mahli, J. & Al-Sayuti, J. Tafseer Al-Jalalayn. Available in Arabic at www.quran.al-islam.com [Accessed in June 2015].
- Al-Qurtubi, M. Tafseer Al-Qurdubi. Available in Arabic at www.quran.al-islam.com [Accessed in June 2015].
- Azar, B. S. & Hagen, S. A. (2006). *Basic English Grammar*, 3rd ed. Pearson: Longman, pp. 267-296.
- Baker, C. L. (1995). *English Syntax*, 2nd ed. London: The MIT Press, pp. 37-55.
- Dudley-Evans, T. & ST John, M.J. (1999). *Developments in English for Specific Purposes: A multi-disciplinary approach*. Cambridge: CUP, pp. 74-94.
- Hurford, J.R. et al. (1983). *Semantics: A coursebook*. Cambridge: CUP, pp. 177-186.
- Katamba, F (1993). *Morphology*, 1st ed. London: Palgrave Macmillan, pp. ^[1]3-15, pp. ^[2]27
- Kearns, K. (2000). *Semantics*, 1st ed. New York: St. Martin's Press, pp. ^[1]1-24, pp. ^[2]41-53, pp. ^[3] 41-44, pp. ^[4]44-45, ^[5]44, pp. ^[6]25-35 pp. ^[7]2, pp. ^[8]37
- The Noble Quran (electronic software). Available at: www.quran.com [Accessed in January 2015].
- Norbert Schmitt , editor (2010). *An Introduction to Applied Linguistics*, 2nd ed: London: Hodder Education, pp. ^[1]92-111, pp. ^[2]74-91, pp. ^[3]78.
- Webster's English Dictionary. Available for EFL learners at: www.merriam.com [Accessed January 2015].

المحددات المنطقية للكمية: بعض الكلمات تعرف بأشباه الأسماء كمكلمات في اللغة العربية الفصحى

سامي الحيح *

ملخص

من وجهات نظر تركيبية متعددة، تستطلع هذه الورقة المدى الذي من خلاله يمكن لبعض الكلمات التي تعرف بأشباه الأسماء أن تستخدم كمكلمات في اللغة العربية الفصحى. وقد استنتجت الورقة الكلمات ذات المرجعية التكميمية الواضحة مثل أدوات التعريف والأرقام والكلمات المرقمة. وتدرس الورقة (فقط) أسماء الإشارة (كما يروق للنحويين العرب تقليدياً الرجوع إليها عند مستوى البناء). إذ تصنّف -وفق وجهة نظر علم المعنى- الورقة أسماء الإشارة العربية أنها كلمات مُعدّلة للمعنى يمكن لها أن تنتشر في النص إما إلى الأمام أو الخلف. كما تعيد تقسيم تلك الأسماء وظيفياً إلى كلمات ذات مرجعية لغوية (أي ترجع إلى كلمة محددة في النص) أو مرجعية غير لغوية تتعلق بالمعنى ككل (أي إلى فكرة سابقة) أو إلى كلمات ذات دلالة تأشيرية ترتبط بالبعد المكاني. وعلى نحو غير تقليدي تنتفع الورقة من علم المنطق من الدرجة الأولى لإعادة تصنيف أسماء الإشارة كمكلمات وجودية وغير وجودية. لذا فإن قيم وافتراضات المعنى لبعض التركيبات الواردة فيها تلك الأسماء قد تم تسجيلها واحتسابها. وقد أجريت هذه الدراسة على النصوص القرآنية الكريمة بسبب الإحكام والدقة اللغويين.

الكلمات الدالة: أسماء الإشارة، علم المعنى، مكلمات.

* جامعة فلسطين الأهلية. تاريخ استلام البحث 2015/4/17، وتاريخ قبوله 2015/6/20.