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Adherence to Mirror Image Hierarchy: Evidence from Modern Standard and Libyan Arabic

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Abstract

Referring to a specific object sometimes requires using several modifiers, such as adjectives with nouns to describe objects. The ordering of these adjectives is generally assumed to adhere to universal hierarchies. It is, therefore, predicted that prenominal (e.g. English) languages present preferred ordering, and postnominal (Arabic) languages are further expected to mirror the ordering observed in those prenominal languages. This paper investigates these predictions by providing a quantitative account of internal orderings of elements in some Arabic noun phrases in Modern Standard Arabic (MSA) and Libyan Arabic (LA). The primary concern is with the relative ordering of adjectives, where both semantic adjective classes and functions (specifying~descriptive~classifying) are invoked. The study findings showed ordering preference in both MSA and LA, at both the global and refined functional levels, in line with the suggested hierarchies. Deviation from the preferred order also appeared possible but under certain circumstances which appear at a greater level in LA than MSA. These instances were, however, accounted for through factors such as contrastive environments.

Key words: adjectives, adjective ordering, lexical classes of adjectives, Libyan Arabic, Modern Standard Arabic, universal image hierarchy

Introduction

Referring to a specific object sometimes requires using several modifiers such as adjectives with the noun to describe the object (Trainin & Shetreet, 2020). The relative order of these adjectives is not 'arbitrary' (Rosales Jr & Scontras, 2019: 1). Speakers normally tend to agree which order is grammatical (Danks & Schwenk, 1974). The order of the English adjectives in (1a) appears to be acceptable. However, most English speakers would find the adjective order in (1b) infelicitous under neutral circumstances.

(1) a. A big Italian cat.

    b. *An Italian big cat.

These ordering preferences have been the subject of many linguistic and psychological investigations. The primary concern is to understand the robustness of these adjective ordering preferences, their manifestations in different languages and the factors that influence specific ordering (Hetzron, 1978, Dixon, 1982; Fehri, 1998; Shlonsky, 2004; Alexiadou et al., 2007; Feist, 2009; Scontras et al., 2017; Fukumura, 2018; Kachakeche & Scontras, 2020). It has been argued that some semantic classes are preferred closer to the modified head than others; forming a hierarchy of classes and their distance to the head noun (Dixon, 1982; Trotzke & Wittenberg, 2019). Researchers agree that, for example, when colour and size adjectives appear together with the same noun, the colour adjective will be produced first in languages such as English (Martin, 1969a; Martin & Molfese, 1972; Oller Jr & Sales, 1969) and German (Belke, 2006). In fact, many attempts have been made to display similar preferences cross linguistically (Sproat & Shih, 1991). Based on such observations, it has been argued that the preferred adjective order in postnominal languages, such as Italian (Cinque, 1994), Spanish (Bosque & Picallo, 1996), or Standard Arabic (Fehri, 1999) mirrors that of prenominal languages. It is generally understood that the sequence of adjectives on the left of the modified noun mirrors

the ones on its right (Laenzlinger, 2005). This is known as Mirror Image Order (henceforth, MIO).

The current study focuses on two varieties of a postnominal language, namely Modern Standard Arabic (MSA) and the Libyan dialect, a dialect spoken in North Africa (Bateson, 2003; Versteegh, 1997). A theoretical account based on linguistic observation argues that adjective ordering preferences in Standard Arabic mirror those of English (Fehri, 1999). However, to the best of our knowledge, this was not tested empirically. We investigated whether Arabic has clear preferences for a certain adjective ordering. We specifically looked into whether it mirrors that of English.

The current study quantitatively accounts for the internal ordering of elements in Arabic noun phrases. It also compares MSA, for which a corpus-based methodology is used, and LA, with a questionnaire-based methodology. The primary concern is with the relative ordering of adjectives, where semantic adjective classes and functions are invoked. The relative position of the quantifier "many" in both varieties will be discussed. Overall, the results represent a significant and wide-ranging original contribution to the field. First of all, they are a contribution to the grammar of MSA, where these adjective ordering issues have not been quantitatively tested before as well as to the typology of noun-phrase word order patterns, in particular the validity of the MIO principle. Second, they represent a pioneering approach to the grammar of Libyan Arabic, where previous research of this level is non-existent.

The paper is structured as follows: Section 2 reviews the most significant findings in the recent literature on the semantic types of adjectives and their hierarchical ordering cross-linguistically. Section 3 gives a detailed account of the methodology used to obtain the data required to study the internal ordering of adjectives with respect to the quantifiers "many" and "all" in both varieties. That is, it will be concerned with the study undertaken on an Arabic corpus and a survey conducted with several participants for the Libyan dialect. Section 4

presents the study findings obtained and relates them to the existing research. Finally, Section 5 provides concluding remarks and discusses some further issues.

Adjective Ordering from a Typological Perspective

Ordering of Adjectives in Relation to Determinatives

Modifying adjectives observe universal hierarchical ordering restrictions with respect to other grammatical categories, such as quantificational determinatives. Their ranked ordering manifests their relative closeness to head nouns in nominal expressions with pre- and postnominal adjectives (Alexiadou et al., 2007; Rosale Jr & Scontras, 2019). In languages with postnominal adjectives, the canonical order is claimed to be in line with the MIO, as exemplified in (2):

(2) a. Determinative > Adjective > Noun (Fehri, 1998: 35)

b. Noun > Adjective > Determinative (Fehri, 1999: 114)

Ordering of Adjective Semantic Classes

A considerable amount of literature has examined the syntax of adjectives cross-linguistically. Attributive adjectives appear in what is considered to be a universal adjective order, which is determined by a semantic factor. That is, attributive adjectives are ordered according to their semantic types (Teyssier, 1968; Kelly, 1970; Quirk et al., 1972; Dixon, 1982; Hetzron, 1987; Sproat & Shih, 1991; Laenzlinger, 2005; Breban & Davidse, 2003; Paul, 2003; Scott, 2002; Teodorescu, 2006; Feist, 2009; McKinney-Bock, 2010). The semantic types of adjectives have been classified into three main types: 'classification', 'description' and 'specification' (Bache, 2000: 235-236), as shown in Table 1.

Determination	Specification	Description			Classification		Head Noun
		Evaluative	Size	Colour	Provenance/ Nationality	Manufacture	

Table 1. Semantic types of adjectives (Adapted from Dixon, 1982: 15; Bache, 2000: 239;

Payne & Huddleston, 2002: 453)[1]

The following example is an English Noun Phrase (NP), which contains an illustrative adjective for each function listed above.

(3) The same good big golden-brown Spanish oatmeal biscuits

From a semantic point of view, all the pre-head modifiers with those functions modify the head noun and they add to its description (i.e., they provide various kinds of information). That is, they have different communicative roles. Bache (2000) notes that the pre-head modifiers in the classification zone, for instance, subcategorise the head, and those in the description zone describe a property denoted by that head. The modifiers with the specifying function, on the

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[1] a. 'Evaluative' and 'manufacture' are terms used by some authors, such as Payne and Huddleston (2002). However, they have been referred to by Sproat and Shih (1991), for example, as 'quality' and 'material' respectively. It is worth noting that only the terms stated in Table 1 will be used throughout this paper.

b. 'Description' has also been known as 'characterization' (Teyssier, 1968) and 'attribution' (Breban & Davidse, 2003). Likewise, 'specification' has also been called 'identification' (Teyssier, 1968) and 'postdeterminer' (Breban & Davidse, 2003). Again, only the terms above will be used.

c. 'Provenance' and 'nationality' might refer to the same type of adjectives; however, the only difference between the two is that the former is a broader term. That is, the former probably refers to any entity whereas the latter refers only to people.

other hand, are more likely to identify ('single out') or quantify the entity denoted by the NP (Bache, 2000: 235). From a syntactic point of view, specifying adjuncts tend to be nearest to determinatives, whereas modifiers with the classification function are located next to the head noun. The third additional qualification, labelled as 'description', is halfway between the two zones (Teyssier, 1986).

Further elaborations were made for sub-functions of those types and their internal hierarchical orderings (Fehri, 1998; Laenzlinger, 2005; Alexiadou et al., 2007). Drawing on and combining the works of Dixon (1982: 15), Bache (2000: 239) and Payne and Huddleston (2002: 453), the ordering in Table 1 above represents the generally established canonical order of those subclasses of prenominal adjectives.

Turning now to the definition of those semantic classes, a remark by Payne and Huddleston (2002) is that evaluative modifiers refer to the speaker's evaluation of an object, such as *good*. General property modifiers include those denoting size properties, such as *big*, and age, such as *old*. Colour modifiers include the basic colour terms, such as *black*. Provenance modifiers include adjectives like *Italian*. Moreover, manufacture modifiers could mean the material out of which something is made, such as *wooden*. Emphasis has been put on the assumption that such an ordering is shared across languages (Dixon, 1982; Cinque, 1994; Teodorescu, 2006).

Grammarians may vary to some extent in naming those functions and determining what to include under each of them. It is convenient to continue to refer to those classes as stated above, but we must be aware that there are some other functions, such as shape modifiers (cf. Alexiadou et al., 2007), which will be excluded due to the limited scope of this study.

A typological study conducted by Dixon (1982) demonstrates that the most syntactic characteristics of one lexical element are likely to be predicted from its semantic properties. Dixon (1982) also assumes that 'the ways in which the syntactic positions of elements can be predicted with accordance to their semantic interpretations seem to be complex in some

respects' (Dixon, 1982: 8). Fiest (2009) stresses the idea that one lexical item could appear in more than one zone but with different senses. To exemplify this point, the phrase *green tea* is interpreted as a type of tea; *green* has a classifying meaning, which is normally descriptive in constructions like *the leaves are half/completely/very green* (McKinney-Bock, 2010: 1&4). Along related lines, Sleeman (1996, cited in Alexiadou et al., 2007: 16) views that descriptive adjectives, such as *big*, can be classifying in some contexts, as in *Of these dogs, I prefer the big [one].*

However, there are no restrictions on adjective ordering under some circumstances. The focus discourse factor could allow changing the basic order. Scott (2002: 92) states that the order in *the RED big ball* (as opposed to *the WHITE big ball*) is marked and the basic ordering is *a big red ball*, whereby the adjective in the former is fronted for reasons of 'focal stress'. In other words, the order here is more likely to relate to a contrastive interpretation. This goes in harmony with Sproat and Shih's (1991) explanation that the deviation of the hierarchy seems to depend upon the speaker's intended interpretation.

The order of the semantic classes in languages with postnominal adjectives is assumed to mirror the ordering observed in languages with prenominal modifiers (Pérez-Leroux et al., 2020; Fehri, 1998, 1999). This is shown in (4):

(4) a. Evaluative > Size > Colour > Provenance > Noun

b. Noun > Provenance > Colour > Size > Evaluative

(Fehri, 1998: 23)

Thus, universal hierarchies of adjective classes have been proposed to determine the relative distance of different adjective classes from the head noun. However, this hierarchy has been challenged by Trainin and Shetreet (2020), who investigated these predictions in Hebrew, a postnominal language. Their study has, surprisingly, revealed that ordering preferences in the

language in question were significantly weaker compared with English where speakers showed a robust ordering preference.

Fehri (1998), in his explanatory study conducted on adjectives in MSA, argues that they are in line with the universal mirror image hierarchical ordering. This generalisation is manifested by the following data in (5), where the order -2-1-N is paralleled by its mirror image N-1-2-.

(5) *al-kutub-u*   *al-faransiyyat-u*   *al-mašhūrat-u*[2]

    DEF-book.PL.M-NOM   DEF-French.SG.F-NOM   DEF-famous.SG.F-NOM

    'The famous French books' (Fehri, 1998: 10)

Mention should also be made to Hetzron's (1978) statement that syntactic factors such as definite articles in NPs which precede nouns as well as adjectives might play a role in the adjectival ordering. That is, they have a tendency towards making the ordering preference weaker. This is equally applied to Arabic adjectives, as they are preceded by definite articles to agree with their modified nouns (AbiSamra, 2003; Ryding, 2005).

A study conducted by Panayidou (2012) to investigate the ordering of the different types of adjectives discussed above, such as colour, nationality, and size in Cypriot Maronite Arabic (CMA), an endangered Arabic dialect extensively influenced by Greek, has revealed that most semantic classes of adjectives respect the hierarchical MIO, except for colour adjectives (ibid.). As far as the canonical MIO of colour and nationality is concerned, nationality is expected to precede colour, as shown in (6a). Interestingly, it was found that colour adjectives vary as to whether they follow or precede nationality adjectives. One determinant of the variation in the order displayed is possibly whether the colour term is a native Arabic word, or a term borrowed

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[2] In MSA, some plural nouns, such as *madāris* 'schools' and *mabānī* 'buildings', known as 'broken plurals', can only adjoin with singular feminine adjectives (Thatcher, 1993).

from Greek. In other words, if the colour term is derived from the mother language as in the case of *red*, *black* or *white*, it tends to adhere to the hierarchy, but if the term is borrowed from Greek, as in *green*, *yellow* and *blue*, the ordering preference is significantly weak (Panayidou, 2012).

(6)   N > Nationality > Colour

a. *tʰavli   l-italiko   l-aχmar/isfet/apcaḏ*

table.DEF   DEF-Italian DEF-red/black/white

'The red/black/white Italian table'

N > Colour > Nationality

b. *tʰavli   li-prasino/tʃitrino/ble   l-italiko*

table.DEF   DEF-green/yellow/blue   DEF-Italian

'The green/yellow/blue Italian table'

There is rich literature on the two-way sub-classification of Arabic adjectives (i.e., attributive versus predicative) given the lack of attention to the three-way sub-classification. Functions of adjectives (i.e., *specification*, *description*, *classification* etc.), on the other hand, have not even been primarily described in the Arabic language in previous research. To the best of our knowledge, there was no quantitative account of these classes in either MSA or LA.

Factors Influencing the Hierarchies

Varied approaches to the justification of the existence of such a hierarchy in the first place have been put forward. The null approach states that adults simply repeat what they have heard before. For instance, adults repeat 'the big blue box' because they have heard it this way. The productivity of novel sentences poses a serious challenge to this view. A cognitive explanation of this type of hierarchical ordering relates to the notion of 'apparentness', which was first introduced by Sproat and Shih (1991) and illustrated by *a good red chair* where *red* is assumed

to be cognitively more apparent than *good*, which means that its process is based on the reflection of an object's surface, whereas *good* presupposes a scale or comparison class (Alexiadou et al., 2007: 311).

Several studies conducted on different languages including English (Hetzron, 1978; Scontras et al., 2019), Tagalog (Samonte & Scontras, 2019) and Arabic (Kachakeche & Scontras, 2020) conclude that subjectivity is also a strong predictor of adjective ordering preferences. That is, adjectives with more objective and undisputable qualifications are closer to the modified noun, whereas those with more subjective or opinion-like properties are assumed to be farther away. For example, the order in *a long thin blade* is accounted for by Hetzron (1978), as follows. '... [T]hickness requires more careful observation, and is hence more reliable as a judgement, than length, a dimension that is too easily perceivable and therefore taken more lightly' Hetzron (1978: 180).

Since the order of the semantic types of adjective has not been quantitatively examined in MSA and LA in the previous research, this study therefore aims to fill in this gap by adopting a corpus-based methodology for MSA and questionnaire-based methodology for LA. This study will assess the extent to which Arabic adjectives adhere to the universal hierarchical MIO. This is deemed to be an intriguing topic to investigate because the results will either corroborate and extend the analysis presented in the literature or refute and reject it.

Methodology

Corpus-based Study

Oxford Arabic Corpus (OAC)

OAC represents a wide cross-section of Standard Arabic covering the period 1996-2008. It contains a collection of samples of written language from three main sources: The Arabic Gigaword (4th edition), which comprises 840 million words of news text; the Arabic Writers Union of Damascus, which contains 10 million fiction words; and Arabic Wikipedia, which is

made up of 30 million words. This corpus is lexeme-based and lacks part-of-speech (POS) tags, which means that the search which was carried out was lexical. This could be considered a drawback of this source of data, as it limits the kind of search which could be conducted.

All the phrases used in the search contained pairs rather than strings of adjectives. First, this was basically for the sake of simplicity. Second, based on Artiagoitia's (2006) claim, all types of adjectives in a single noun phrase are rarely found. Finally, if an Arabic noun is followed by more than two adjectives, the final adjective must be preceded by the conjunction 'and' (Hetzron, 1978). In this case this type of ordering goes beyond the scope and the aim of this study. Additionally, these searches contained pairs of adjectives only, excluding the modified nouns, so as to not limit the data for certain nouns and widen the scope of more adjectival sequences to obtain meaningful results. The only exception is the search on the ordering of adjectives with respect to the MSA quantifier 'many' because of the possibility of having quantifiers before the head noun and adjectives after it. This has not been implemented for the questionnaire examples, however, for intelligibility reasons.

For each pair of adjectives, two separate searches were run, the first of which triggered the relative universal order stated in the literature, and the second of which triggered the reverse order of the same pair of adjectives. The examples in (7) illustrate this point.

(7) a. *al-bunnī al-kabīr*

　　DEF-brown DEF-big

　　b. *al-kabīr al-bunnī*

　　DEF-big　DEF-brown

　　'The big brown NOUN'[3]

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[3] Following the standard conventions, the word 'NOUN' is a place holder for any noun that occurs in this position in OAC.

Questionnaire-based Study

Participants

The participants were recruited on Facebook and were from different Libyan cities and towns including Tripoli, Benghazi, Misurata and Sirte. The study was based on a survey of 82 bilingual speakers, who are native speakers of Libyan Arabic and have spoken Libyan since birth. At the time of data collection, some of the subjects were living in the UK, with the rest residing in Libya. Responses were gathered electronically. Since some questions were skipped by some participants for certain reasons (i.e. the number of respondents is different for each question), the number of responses will be indicated separately in each of the following examples.

The participants vary according to age, gender, education and occupation. Their age varies between 21 and 69 years old, but the majority (96%) were female. Among the 82 members of different professions, a large proportion were housewives (81%) whereas the rest were either students or engaged in some form of teaching. Furthermore, they were informed of the general purpose of the study but not informed of its precise aim in order to prevent them from thinking consciously about adjective ordering, which would probably influence their responses. They were also informed of their rights of privacy and their freedom to decline to answer any question for any reason.

The questionnaire contained several questions which included pairs of NPs. Each nominal expression contained two adjectives. In order to increase the reliability and validity of the data, the adjectives surveyed were mixed with some other modifiers such as prepositional phrases and relative clauses, so as not to draw the informants' attention to the subject of the study. The adjectives in their two possible orders were presented in a similar manner as in the corpus (See Appendix 1 for the questionnaire and the essentials of the detailed instructions which accompanied the questionnaire).

Informants were given a set of sentences which were listed in all possible orders and written in LA to minimise the level of interference as much as possible. They were then asked to select which option(s) they were most likely to say. In some cases, as will be discussed throughout, participants were asked explicitly about their intuitions and general remarks regarding the difference in meaning between the two possible orders if there was any. In addition, for all the questions, space was provided for general remarks and for composing phrases with their linguistic contexts. When any additional information or assistance was needed to puzzle out the order, our intuitions and knowledge as Arabic speakers were sought as supplementary to the grammar of the dialect in question.

Adopting this method[4], whereby most test items were presented without a context, might not be universally accepted a priori by all researchers. This is probably because of lack of reliability or because the role of context in the saliency/preference for one order or another might be skewed. However, the choice of formatting the questionnaire in this way can be defensible on two grounds. First, ordering syntactic items is used tied up with information structure which makes studying any given order unfeasible with a larger naïve or informed sample of respondents, which would consequently lead to unreliable results. Second, the selection of a questionnaire to find answers is motivated by Gillham (2008), who states that questionaries are very efficient because they save time and money if the information is obtained from volunteers. Besides, analysing answers to closed questions is straightforward. Gillham (2008) also asserts that, unlike interviews for example, questionnaires maintain the respondents' anonymity and helps them become more relaxed since the answers do not have to be immediate. Moreover, the interviewer's biases are ruled out in the case of questionnaires. In the case of the questionnaire designed for this study, examples were given out of context to

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[4] Our gratitude goes to Prof. John Payne from The University of Manchester, who strongly recommended this method for feasibility and simplicity reasons.

make the questionnaire as short as possible in order to encourage the voluntary participants to complete it thoroughly. We are totally aware of the fact that in real life the context can affect the order of adjectives. Nevertheless, for the purpose of this study, we had to bear in mind that the volunteers could be discouraged from completing the questions if the examples they need to choose from are too long. It can also be confusing for them to choose between options if the examples are in full context. Therefore, for reasons of feasibility, phrases were provided for the participants to choose from. One major problem with regard to the adoption of such a method, however, is the recognisable imbalance between the ordering patterns based on the introspective data from the questionnaire and the patterns observed within their context in the OAC. This means that it is not ideal, but it is the best data that is feasible.

Selection of Adjectives and Quantifiers

Out of the large number of the most frequent adjectives in OAC, a set of the most frequent adjectives were adopted from the AOC, as shown in Table 2, for the purpose of the current study.

Arabic adjective	Meaning	Frequency per million words
ṯāniyah	second	1,268.8
ʿiddah	many	1,060.2
ibtidāiyyah	primary	1,003.1
χašabiyyah	wooden	955.4
kabīr	big	987.9
saʿūdī	Saudi Arabian	448.5
ʾalmānī	German	218.5
waḥīd	only	172.9
qadīmah	old	167.5

Arabic adjective	Meaning	Frequency per million words
ʾaḥmar	red	132.9
lībī	Libyan	90.1
aχḍar	green	62.2
ʾaswad	black	44.8

Table 2. Adjectives in OAC with their frequency per million words

Those adjectives take either the form of masculine singular, feminine singular, masculine plural or feminine plural in the queries used. Dual, however, was excluded as it is of the least importance.

Turning now to the Arabic quantifiers, ʿiddah in MSA and wājid in LA, which correspond to the quantifier 'many' in English, have been selected. ʿiddah does not inflect for number, case or gender. Wājid in LA corresponds to the uninflected word ʿiddah in MSA. At first sight, wājid appears to be a determinative as it corresponds to many in English. However, after a careful investigation of the data gathered from LA, it seems to be adjectival in some cases as it possesses some typical adjectival properties. These judgements have been made in the light of semantic, syntactic and morphological criteria.

First, wājid semantically behaves like the typical adjective kways-īn (good-PL.M.INDF) in (8); both function as modifiers of their head nouns (Miller, 2002; Pullum & Huddleston, 2002). That is, both describe the noun ṭalabah (student.PL.M.INDF). One could claim, however, that modifying nouns is a property of both determinatives and adjectives (Radford, 1997). Therefore, this criterion does not suffice to demonstrate that wājid is not determinative. Consequently, further syntactic and morphological criteria have been taken into account (Dixon, 1982).

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*(8) ṭalabah   kways-īn   **wājd-īn***

student.PL.M.INDF   good-PL.M..INDF   many-PL.M.INDF

'Many/Numerous good students'

Further evidence comes from combining the adjectival syntactic criteria proposed by Pullum and Huddleston (2002), Quirk et al. (1972), and Genetti and Hildebrandt (2004):

'Function': one typical function of simple adjectives is that they can be both attributive and predicative. In (9), *wājid* appears to be attributive. It can also be a predicative complement as illustrated in (10).

(9) e-ṭalabah   wājd-īn

DEF-student.PL.M   many-PL.M.INDF

'The students are many.'

Equally worthy of notice is that *wājid* could function as a predicative complement of *become* and *seem*, which makes it similar to other adjectives. Compare:

(10)   a. *e-ṭalabah   ībān-u   wājd-īn*

DEF-student.PL.M   seem-3PL.M   many-PL.M.INDF

'The students seem to be many'

b. *e-ṭalabah   ībān-u   ʾaḏkiyā*

DEF-student.PL.M   seem-3PL.M   clever-PL.M.INDF

'The students seem clever'

'Gradability': is another syntactic feature which apparently differentiates adjectives from determinatives. More precisely, *wājid* characteristically takes degree modifiers, such as *bukkul* 'very', for example:

(11) ṭalabah   *wājd-īn*   *bukkul*

  student.PL.M.INDF many-PL.M.INDF very

  'They are so many students.'

Like typical Arabic adjectives (AbiSamra, 2003; Bateson, 2003; Ryding, 2005), *wājid* inflects for number, gender and (in)definiteness. This is demonstrated in (8–11) above, where *wājdīn* agrees with *ṭalabah* in terms of number, gender and indefiniteness exactly as *kwaysīn* 'good' does.

In all the examples (8–11), *wājid* is, in fact, like its English counterpart *many*, which are ambiguous, in both English and Arabic, between an adjective and a determinative reading. Despite this ambiguity, the selection of *wājid* preserves its relevance to the current study, whose main focus is on the ordering of adjectives in Arabic.

Moving on to Arabic numerals, difficulties have been encountered in understanding Arabic numerals. This is due to their linguistic peculiarities which lie in their anomalies of gender and number agreement and others related to case marking and word order (Al-Bataineh et al., 2020: 3). As a result of this, the focus on this section is on the type of simplex numerals adopted in this study.

This type includes *wāḥid* or *waḥīd* 'one/only' and *ʾiṯnān* 'two' which occur only post-nominally and agree with the numerated noun in definiteness, case, and gender, as exemplified in (12a,b):

(12) a. *rajul-un* *wāḥid-un*   **vs.** *ʾimraʾat-un* *wāḥid-at-un*

   man.NOM one.SG.M-NOM   woman-NOM one.SG.F-NOM

   'one man'   'one woman'

  b. *al-rajul-ān*   *al-ʾiṯn-ān*

   DEF-man-DUAL.NOM DEF-two.F-DUAL.NOM

   'two men'

vs.

ʾimraʾa-tān   ʾitna-tān

woman-DUAL.NOM   two-F.DUAL.NOM

'two women'   (Al-Bataineh et al., 2020: 3)

An interesting characteritic of these numerals that define them as determinatives is their appearance in partitive constructions, for instance:

(13) wāḥid   min   al-ṭalabah   ḥaḍar   al-dars

   one.SG.M   of   DEF-students   attended   DEF-lesson

   'One of the students attended the lesson.'

For each investigation, there are three possible orderings of adjectives with regard to quantifiers taken into account, which are illustrated in (14) below.

(14)   a. *madāris*   *ibtidāiyyah*   *ʿiddah*

        school.PL.F.INDF   primary.SG.F.INDF   many.INDF

       b. *madāris*   *ʿiddah*   *ibtidāiyyah*

        school.PL.F.INDF   many.INDF   primary.SG.F.INDF

       c. *ʿiddat*   *madāris*   *ibtidāiyyah*

        many.INDF   school.PL.F.INDF   primary.SG.F.INDF

       'Many primary schools'

Results & Discussions

Adjectives in Relation to the Quantifiers ʿiddah & wājid

Adjectives, which are taken here in a broader sense, are investigated with regard to the quantifiers *ʿiddah* and *wājid* ('many') in MSA and LA respectively. Some motivation for this selection comes from the observation that *wājid* and *ʿiddah* have different orderings with respect to adjectives in the two varieties of Arabic.

As previously discussed in the literature review, modifying adjectives are hierarchically ranked, which shows their closeness to the head noun (Alexiadou et al., 2007). Fehri (1998: 35) has produced a hierarchy for postnominal modifiers, which is reproduced in (15) and includes only the relevant grammatical categories; namely, Adjective and Quantifier.

(15)   a. Noun > Adjective > Quantifier   OR

      b. Quantifier > Noun > Adjective

The adjective *ibtidāiyyah* ('primary') in MSA and LA is picked out randomly and examined with respect to the quantifier 'many'. The total number of the instances occurring in OAC for the examples in (16) is 9 and the number of participants who responded to the examples in (17) is 81.

   o **MSA**

(16)   a. *?madāris*   *ibtidāiyy-ah*   *ʿiddah*   ***?N > Adj > many***

        school.PL.F.INDF   primary-SG.F.INDF   many.INDF

      b. *?madāris*   *ʿiddah*   *ibtidāiyy-ah*   ***?N > many >Adj***

      c. *ʿiddat*   *madāris*   *ibtidāiyy-ah*   ***many > N > Adj***

     'Many primary schools'

   o **LA**

(17)   a. *medāris*   *ibtidāiyy-ah*   ***wājd-ah***[5]   **N > Adj > *many***

        school.PL.INDF   primary-SG.F.INDF many-SG-F.INDF

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[5] Although Arabic is widely known as a highly inflected language and it is inflected for case marking (Larkey et al., 2002; Othman et al., 2003), glosses for case marking has not been illustrated in the examples of Libyan Arabic. For consistency reasons as well as the fact that the examples presented are out of their context, case marking has also been excluded in the MSA examples.

b. *medāris*   **wājd-ah**   *ibtidāiyy-ah*   **N > *many* > Adj**

c. **wājd-ah**   *medāris*   *ibtidāiyy-ah*   ***many* > N > Adj**
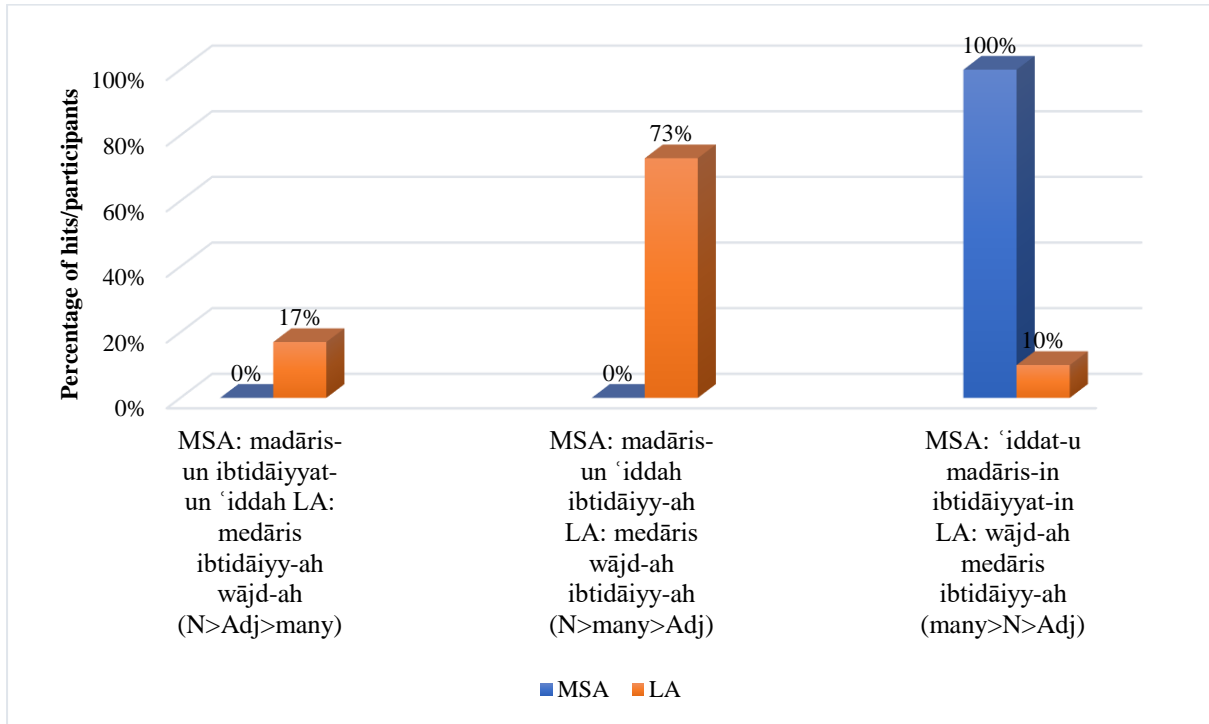
'Many primary schools'

Figure 1. Adjectives and quantifiers

Based on the findings of the study from the Corpus and the questionnaire and as shown in the graph above, there is a significant difference between the possible orderings in MSA and LA. For the former, all the examples (9 hits) which were found in the order of the adjective *ibtidāiyyat-un* (primary-INDF) with respect to the quantifier *ʿiddah* (many.INDF) correspond to the order in (17c). Thus, it is presumably the only grammatical order in this language according to the corpus. The other possible orders are more likely to be ruled out, which is indicated by question marks in (17a,b). However, there are some limitations that can be levelled at the use of corpora. First, many researchers including Chomsky (1962 cited in Meyer & Nelson, 2006) point out that corpora contain structures that language speakers use but there are some potential structures which do not exist in corpora. As Hoffmann (2005: 6) states

'[a]lthough some of today's language corpora contain several hundred million words, this informational store comprises only a fraction of the language that is actually produced.' Additionally, a corpus does not specify what does not exist and speculate the reasons for that. In other words, some syntactic structures are unavailable because of their ungrammaticality, dialectal or genre restrictions for instance. The order in (17a) appears to be well-attested in news articles and published books as a Google search suggests. Given the fact that (17b) is not possible, this again suggests that MSA favours the universal hierarchy.

In LA, on the other hand, there seem to be three possible syntactic orderings. The first is in line with the MIO, where *wājdah* is postposed and the response rate for this ordering was 17%. Then comes the most predominant order in the dialect in question where the quantifier is placed between the head and adjective. This is a striking finding to emerge from the data as all the subjects (73%) stated that they would be comfortable using this ordering. The third order is where *wājdah* occurs before the noun; only 10% of the informants selected this order, but 5% of them stated that they would also use the other orderings. What can be drawn from this data is that MSA is generally in line with the MIO, but the order in LA varies and the most common order, at face value, contradicts with the hierarchy if *wājdah* is considered to be a quantifier.

When the participants were asked if there was any difference in meaning between the examples in (17), a minority (7%) commented that when *wājdah* follows the adjective as in (17a) or before the noun as in (17c), it means that the number of the schools is large and they are all primary. Simply, it restricts the denotation of the set of schools. For the preference of (17b), the position of the adjective *ibtidāiyyah* tends to retain a reduced relative clause reading; equivalent to a corresponding relative clause containing the adjective in predicate position, which can be interpreted as 'many schools which are primary'. It seems that *wājdah* is restricting the set of schools and then *ibtidāiyyah* is a reduced relative clause. This is a

possibility discussed by Cinque (2010) considering many postnominal adjectives in English. For example, *the animals that are *live/alive* can only be equivalent to *the animals *live/alive* with the postnominal adjective *alive* and not to *the live/*alive animals* with the prenominal adjective *live*. In a nutshell, there seems to be a strong correlation between the syntactic position of *wājdah* and the meaning it indicates. *Wājdah* clearly complies with the hierarchical ordering in the light of this interpretation until it is proven otherwise.

Ordering of Semantic Classes of Adjectives

Specifying Adjectives in Relation to Classifying Adjectives

In this section, an adjective with a specification function, namely, *waḥīd* ('only') are explored in relation to the classificatory adjective *ibtidāiyyah* ('primary') in both MSA and LA.

- **MSA**

(18) a. *al-ibtidāiyy-ah*   *al-**waḥīd**-ah*   **N > Adj >** *only*

DEF-primary-SG.F DEF-only-SG.F

  b. ?*al-**waḥīd**-ah*   *al-ibtidāiyy-ah*   **?N >** *only* **> Adj**

 'The only primary NOUN'

- **LA**

(19) a. *el-madrs-ah*   *el-btidāiyy-ah*   *el-**waḥīd**-ah*   **N > Adj >** *only*

DEF-school-SG.F   DEF-primary-SG.F DEF-only-SG.F

  b. *el-madrs-ah*   *el-**waḥīd**-ah*   *el-btidāiyy-ah*   **N >** *only* **> Adj**
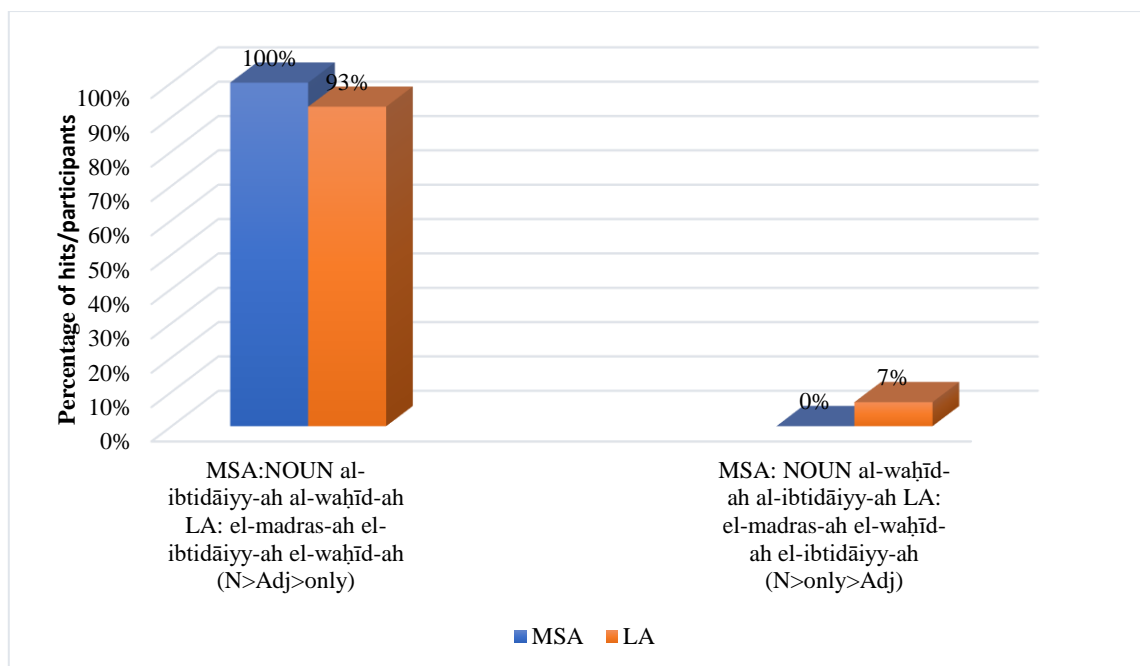
 'The only primary school'

Figure 2. Specifying adjectives in relation to classificatory adjectives

As can be seen from Figure 2, all the examples (7 hits in total) found in OAC are in line with the ordering in (18a). Nevertheless, the reverse order resulted in 0 hits. Regarding LA, 93% of the responses obtained were for the order in (19a) in contrast to only 7% for (19b). The dominant order in both MSA and LA in which *al-ibtidāiyyah* (DEF-primary) precedes the specifying adjective *al-waḥīdah* (DEF-only) respects the MIO. The inverted order, however, where *al-waḥīdah* precedes *al-ibtidāiyyah* is possible in LA but not in MSA.

The variation in LA has been explained by several participants. Of the informants who commented on the meaning of the two examples in (19), 55% stated that there was no semantic difference between the two, and the other 45% stated that the meaning expressed in (19a), where *el-waḥīdah* is placed after *el-ibtidāiyyah*, is that there is only one primary school in one particular area and simultaneously there are other kinds of schools in the area, such as secondary schools. This is analogous to the English interpretation of *the only primary school in the area*. The meaning of (19b), on the other hand, according to the same informants, is that

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there is only one school in the area, which happens to be a primary school, but, there are no other kinds of schools in the same area.

<div align="center">Specifying Adjectives in Relation to Descriptive Adjectives</div>

This section provides a brief demonstration of how *waḥīd* (only.SG.M.INDF) works in relation to the descriptive adjective *kabīr* (big.SG.M.INDF) in MSA and LA. See (20) and (21). The results are also diagrammatically illustrated in Figure 3.

o **MSA**

(20) a. *al-kabīr*   *al-**waḥīd***   **N > Adj >** *only*

DEF-big.SG.M   DEF-only.SG.M

b. ?*al-**waḥīd***   *al-kabīr*   **?N >** *only* **> Adj**

'The only big NOUN'

o **LA**

(21)   a. *el-maḥel*   *el-kebīr*   *el-**waḥīd***   **N > Adj >** *only*

DEF-shop.SG.M DEF-big.SG.M DEF-only.SG.M

b. *el-maḥel*   *el-**waḥīd***   *el-kebīr*   **N >** *only* **> Adj**
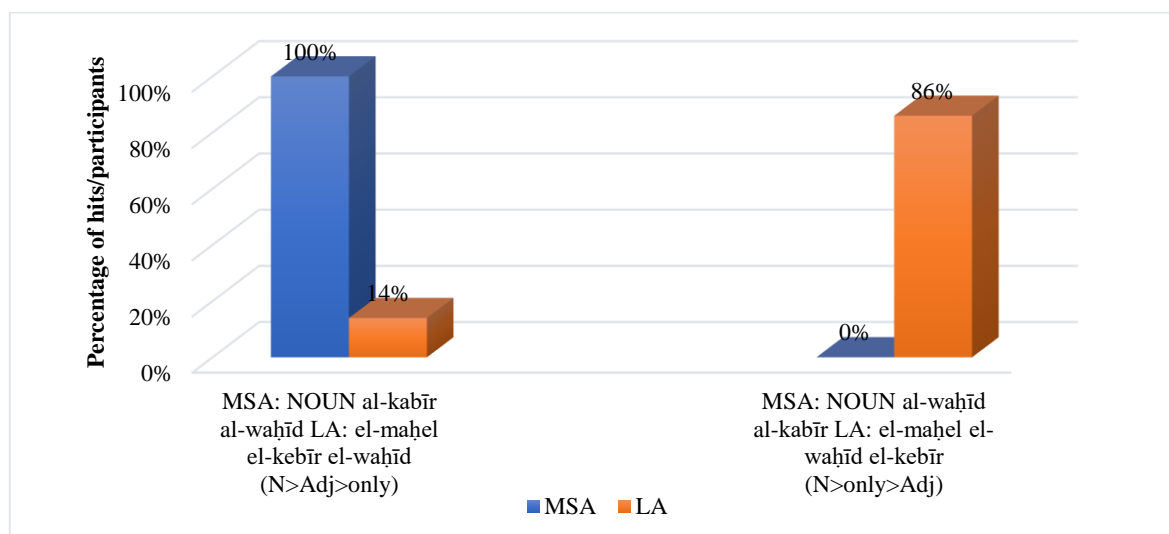
'The only big shop'

Figure 3. Specifying and Descriptive Adjectives

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According to the data presented in Figure 3, the results obtained for MSA are similar to those in the foregoing section. All the instances obtained follow the pattern in (20a) and the query in (20b) has resulted in zero examples.

For LA, the total number of informants who responded to the examples in (21) was 77. The opposite of MSA seems to hold for LA. The majority of respondents (86%) selected the example (21b) whereas only 14% chose (21a). However, the minority of the participants (70%), who indicated that they would be comfortable to use the reverse order (namely, N > only > big), would also use the order N > big > only, but the former is their preferred ordering. They were also asked to provide the meaning and the context in which they would probably use the two orderings. The two clarifications provided for (21a) are as follows: it either looks at all the shops and picks the big one, and this implies that there are other small stores in the same area, or it could mean that the only shop in one particular area happens to be big.

Descriptive Adjectives in Relation to Classifying Adjectives

MANUFACTURE, SIZE

Manufacture adjectives with respect to size adjectives have been explored in both MSA and in LA. The examples below illustrate this.

- **MSA**

(22) a. *al-χašabiyy-ah*   *al-kabīr-ah*   **N > Manufacture > Size**

        DEF-wooden-SG.F   DEF-big-SG.F

      b. ?*al-kabīr-ah*   *al-χašabiyy-ah*   **?N > Size > Manufacture**

        'The big wooden NOUN'

- **LA**

(23) a. *e-ṭawl-ah*   *e-lauḥ*   *el-kebīr-ah*   **N > Manufacture > Size**

    DEF-table-SG.F DEF-wooden.SG.F DEF-big-SG.F

    b. *e-ṭawl-ah*   *el-kebīr-ah*   *e-lauḥ*   **N > Size > Manufacture**
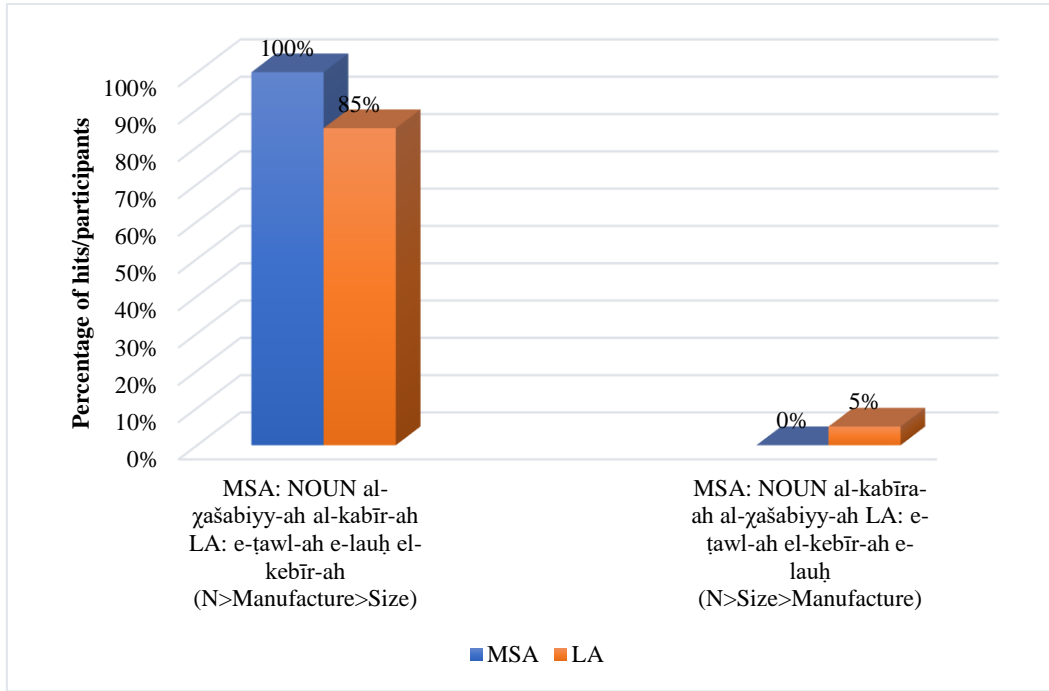
    'The big wooden table'[6]

Figure 4. Manufacture and size adjectives

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[6] There is an additional ordering in LA, which is demonstrated below and was excluded from the current study for two reasons. First, the main focus of this paper is on the ordering of adjectives. Second, the idea that manufacture is a prepositional phrase (PP) for some Libyans is less important in essence, because in Arabic, PPs probably tend to reside at the end of the noun expression.

    e-ṭawl-ah   *el-kebīr-ah*   *mtaʿ*   *el-lauḥ*

    DEF-table-SG.F   DEF-big-SG.F   of   DEF-wood.SG

    'The big wooden table'

As the graph shows, for MSA, all the relevant instances which were found in the corpus corresponded only to the ordering in (22a) where *al-χašabiyyatu* precedes *al-kabīratu*. In contrast, the reverse order, as given in (22b), does not seem to exist in MSA. MSA appears to lend support to the hierarchical ordering as far as the adjectives of manufacture and size are concerned.

Likewise, in LA, the most common order tends to be the one that respects the MIO, where manufacture precedes size; only 5% of answers were obtained for the inverted order. In addition, of the 63 participants who responded to the examples in (23), 60% commented that the order N > Manufacture > Size was the norm. In other words, the tendency was to place the manufacture adjective closer to the head in the line of adjectives. Once again, a question was asked regarding whether there was any difference between the two variants, and the overall response to this question was poor. Only 3% of all the Libyan participants in the current study commented that the two examples in (23) were not semantically identical. They added that they would use the pattern in (23b) only in contrastive environments, which departs from the canonical order. That is, they would use the order in (23b) when there were a set of wooden tables and the adjective for 'big' tends to distinguish one particular table from the rest. MSA and LA generally seem to be in line with the hierarchy, and the emphasis or the contrastive reading of those examples is seen as the sole external trigger behind the variation in LA, which influences the adjective to move closer to the head noun. This is interesting because in the review of the remarks above, Arabic tends to contradict with similar English cases. As explained earlier by Scott (2002) in the literature, the marked order for the English NP *the big red table* would be *the RED big table*, where the focused adjective is the outermost of the head.

For this part of the paper, two pairs of adjectives are selected to be investigated; namely, *al-ʾalmānī* (Def-German) and *al-ʾaḥmar* (DEF-red) for MSA, and *el-ʾarabī* (DEF-Arabic) and *el-ʾaḥmir* (DEF-red) for LA, as the data below illustrate.

o **MSA**

(24) a. *al-ʾalmānī*   *al-ʾaḥmar*   **N > Provenance > Colour**

       DEF-German.SG.M.GEN   DEF-red.SG.M

       b. *al-ʾaḥmar*   *al-ʾalmānī*   **N > Colour > Provenance**

       'The red German NOUN'

o **LA**

(25) a. *el-gifṭān*   *el-ʾalmānī*   *el-ʾaḥmir*   **N > Provenance > Colour**

       DEF-dress.SG.M   DEF-German.M.SG the-red.SG.M

       b. *el-gifṭān*   *el-ʾaḥmir*   *el-ʾalmānī*   **N > Colour > Provenance**
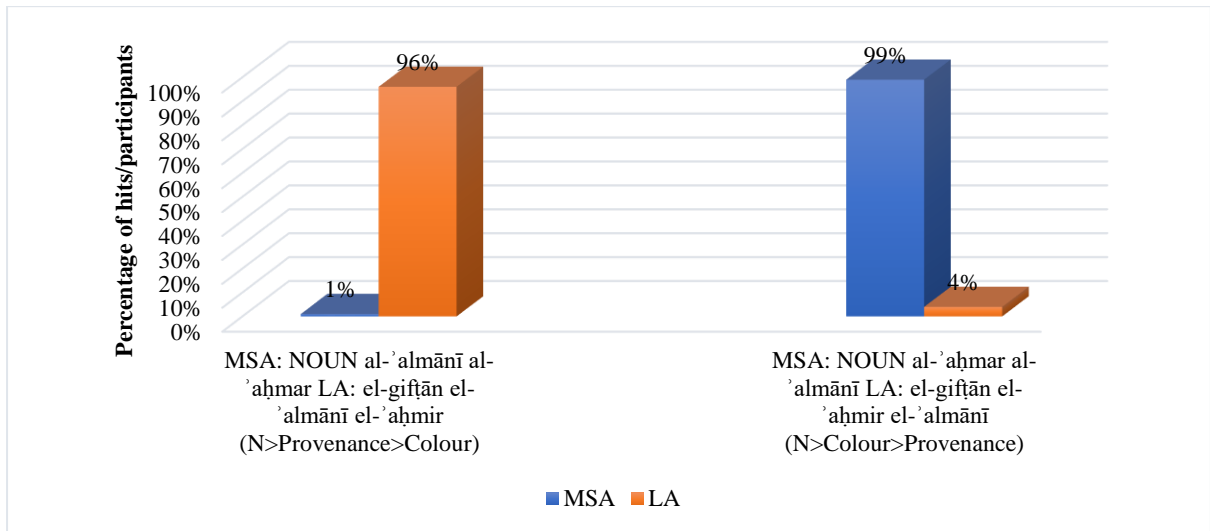
       'The red German dress'

Figure 5. Provenance and colour adjectives

For MSA, the total number of examples examined is 72. Interestingly, 1% and 99% of instances came up with the pattern in (24a) and (24b) respectively. By contrast, for LA, data has been collected from 82 participants, 96% of whom selected the example in (25a) and only 4% of whom chose the pattern in (25b).

There seems to be a difference in the two varieties of Arabic in terms of the order of provenance adjectives in correlation with colour adjectives. The most striking result to emerge from the data in OAC is that the most frequent ordering in MSA is when provenance follows colour. This was unexpected, because, if the semantic factor came into play here, we would have found the order N > *al-ʾalmānī* > *al-ʾaḥmar* (N > German > red) more frequently.

To understand the reasons for the variation in the Standard language, some other contextual factors have been taken into account. It has been observed that whenever the order in (24b) (i.e. all the 99% of the examples in the graph) occurs, it needs to be adjacent to the word *al-ṣalīb* 'the cross'. The classification system seems to be irrelevant when *al-ʾaḥmar* (DEF-red) is used as part of a collocation, for example *al-ṣalīb al-ʾaḥmar* (DEF-cross DEF-red). Put simply, *al-ʾaḥmar* tends to be always adjacent to the head noun; thereby it should be next to the word *al-ṣalīb*), for instance:

(26) [...] *eḥdā al-madāris   allātī   šayyada-hā   **al-ṣalīb-u***

        one   DEF-school.PL which.PL founded-3SG.F DEF-cross-SG.M.NOM

        al-aḥmar-u   *al-ʾalmāniyy-u.* [OAC: aaw_arb_20081225.0042]

        DEF-red.SG.M-NOM DEF-German.SG.M-NOM

        'One of the schools which the German Red Cross has founded.'

Although the example in (27) was the only example found in the corpus that corresponded to the pattern in (24a), it appears to be the unmarked order of the adjectives in question and the semantic factor seems to come into play here. Since *al-ʾaḥmar* (DEF-red) is descriptive of the

colour of the arrow in the same example, and not part of the name of the organisation The Red Cross, *al-ʾaḥmar* tends to occur after *al-ʾalmāniyyah* (DEF-German).

(27)   *waḍaʿa-t   **al-sahm-a al-ʾalmāniyy-ah   al-ʾaḥmar-a***. [OAC: hyt_arb_20001230.0095]

       put-3SG.F DEF-arrow-ACC DEF-German.SG.M-ACC DEF-red.SG.M-ACC

       'It put the red German arrow.'

Even when *al-ʾaḥmar* was investigated in correlation with other provenance adjectives in OAC, such as, Libyan, Algerian and Saudi Arabian, surprisingly all the relevant examples examined manually were also found in association with the name of the charity The Red Crescent.

In order to reduce the possibility of getting names of institutions where the word for 'red' in Arabic is part of a collocation, another frequent colour term, namely *al-ʾaχḍar* was selected.

Adjectives	Example	Possible orders	Percentage
Libyan, *Green*	a. *al-lībī* **al-ʾaχḍar** DEF-Libyan DEF-green	N > Provenance > *Green*	2% (1 hit)
	b. **al-ʾaχḍar** *al-lībī* DEF-green DEF-Libyan	N > *Green* > Provenance	98% (62 hits)
Saudi Arabian, *Green*	a. *al-saʿūdī* **al-ʾaχḍar** DEF-Saudi DEF-green	N > Provenance > *Green*	9% (6 hits)
	b. **al-ʾaχḍar** *al-saʿūdī* DEF-green DEF-Saudi	N > *Green* > Provenance	91% (58 hits)

Table 4. Provenance and the adjective for 'green' in MSA

Once again, the results to some extent correspond to the findings presented in Figure 6 and Table 4 where the canonical order (i.e. provenance occurs before colour) seems to be less dominant and even impossible in some cases. There may be some other factors involved in the machinery of the ordering, however, as only one example was found where *al-aχḍar* occurs

after *al-lībī* and it tends to be descriptive as in (28). It might be evident that the semantic factor plays a significant role.

(28) [...] *bi-iz-zayy*   *al-taqlīdī*

               with-costume.SG.M.GEN DEF-traditional.SG.M.GEN

               al-lībī   ***al-ʾaχḍari*** [OAC: afp_arb_20060620.0106]

               DEF-Libyan.SG.M.GEN   DEF-green.SG.M.GEN

               'With the green Libyan traditional costume'

Similarly, when *al-aχḍari* co-occurs with *al-saʿūdī* (DEF-Saudi), 9% of the instances found with *al-aχḍari* are located after provenance. The order in all the examples seems to be unmarked since *al-aχḍari* is descriptive, as shown in (29), whereby it describes the colour of *al-ʿalam* (DEF-flag). However, this may not be the best choice since the Saudi Arabian flag is green, and these twoccolour terms cannot be convincingly contrasted with 'red' in this particular case.

(29) [...] *ḏalla*   ***al-ʿalam-u***   ***al-saʿūdīyy-u***

               remain.PST.3SG.M   DEF-flag.SG.M-NOM   DEF-Saudi.SG.M-NOM

               al-ʾaχḍar-u   [OAC: nhr_arb_20050802.0049]

               DEF-green.SG.M-NOM

               'The green Saudi Arabian flag has remained.'

Regarding the reverse orders, 98% and 91% of the examples were found for the orders N > Green > Libyan and N > Green > Saudi respectively. No evidence was found associated with collocations or contrastive reading as previously discussed for LA. The only observation that could be made in relation to this is that in both cases the majority of the examples found in OAC relate to the field of sports. Strictly speaking, when the context is in relation to sports and the World Cup, the deviation from the natural order reappears. Perhaps colours are more

significant as they are more visual and representative of countries than nationalities. For instance, a Libyan can be referred to as green because of some sort of dress or paint he/she may be wearing, but it is more probable that he/she would be referred to as green because of the sports team he/she belongs to. Probably more emphasis is put on the colour term, but this cannot be verified until spoken data is examined. It is difficult to explain this result, but it might be related to the semantic type of *al-ʾaχḍar* (DEF-green). It might be an adjective with a categorising function, where it classifies teams by their colours and is supposed to be closer to the noun. The further remark from the data that might support this assumption is that some examples occurred in constructions analogous to those of the construct state and as an independent phrase without its head nouns, as illustrated in (34) and (35) respectively.

(30) [...] *lāʿibi*   ***al-ʾaχḍari***

      player.PL.M.GEN.INDF   DEF-green.SG.M.GEN

      al-saʿūdī [OAC: ahr_arb_20071123.0056]

      DEF-Saudi.SG.M.GEN

      'The players of the green Saudi Arabian team'

(31) *sajjala*   ***al-ʾaχḍar-u***   *al- saʿūdīyy-u* [...] [OAC: hyt_arb_20070316.0074]

    score.PST.3SG DEF-green.SG.M-NOM DEF-Saudi.SG.M-NOM

    'The green Saudi team scored ...'

The sequence *al-ʾaχḍari al-saʿūdī* seems to replace its head noun, as it occurs in a position where an NP is expected. In (31), for example, both adjectives are definite and bear a genitive case, and the head can still be easily identified as *farīq* 'team'. *Al-ʾaχḍari* is probably here as a classifying rather than descriptive modifier.

When these results are compared to those presented by Panayidou (2012), it was found that colour terms in CMA which are originally from Arabic, such as *red*, tend to observe a strict hierarchical prominence. Other terms which are originally from Greek, like *green*, demonstrate

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a violation of the hierarchy. This study can neither refute nor corroborate this claim as all the examples with the two colour adjectives in question tend to be irrelevant.

Due to the inadequacies of using the two colour terms for 'red' and 'green' and to reach more accurate results, the next most frequent adjective, *ʾaswad* 'black' was selected. The findings are summarised in Table 4.

Adjectives	Example	Possible orders	Percentage
Libyan, *black*	a. *al-lībī* **al-ʾaswad** DEF-Libyan DEF-black	N > Provenance > *black*	100% (5 hits)
	b. **al-ʾaswad** *al-lībī* DEF-black DEF-Libyan	N > *black* > Provenance	0% (0 hits)
Saudi Arabian, *black*	a. *al-saʿūdī* **al-ʾaswad** DEF-Saudi DEF-black	N > Provenance > *black*	0% (0 hits)
	b. **al-ʾaswad** *al-saʿūdī* DEF-black DEF-Saudi	N > *black* > Provenance	0% (0 hits)

Table 4. Provenance and the adjective for 'black' in MSA

Interestingly, there were no results found for all of the orders in (b) for each pair of adjectives. There were also no results for the order N > *Saudi* > *black*, but this might be due to lack of occurrences in the corpus rather than the possibility that such an order is non-existent in MSA. This would be a fruitful area for further work where more adjectives of colour and provenance are investigated.

For LA, the data in Figure 5 revealed that colour appears either before or after provenance, but the latter is the most dominant one. It is interesting to know the context in which the inverted order would be used. Therefore, the participants were asked whether it could be used to describe an Arabic red dress or probably used in other environments. The use of emphasis

(i.e. contrastive interpretation) is what was obtained from this query. This underpins the assumption introduced above that in LA the adjective moves next to the noun. This has been noted in (25b) where the colour *el-ʾaḥmir* (DEF-red) resides next to the head.

COLOUR, SIZE

The searches carried out in (32) for MSA colour and size adjectives have resulted in 19 hits. Of the participants in the study conducted on the ordering in (33) for LA, 82 subjects completed and returned the questionnaire. The results are presented in Figure 6.

- o **MSA**

(32) a. *al-ʾaswad*   *al-kabīr*   **N > Colour > Size**

   DEF-black.SG.M   DEF-big.SG.M

   b. *ʔal-kabīr*   *al-ʾaswad*   **?N > Size > Colour**

   'The big black NOUN'

- o **LA**

(33) a. *e-šanṭ-ah*   *e-ssoud-ah el-kebīr-ah*   **N > Colour > Size**

   DEF-bag-SG.F DEF-black-SG.F DEF-big-SG.F

   b. *e-šanṭ-ah*   *el-kebīr-ah*   *e-ssoud-ah*   **N > Size > Colour**
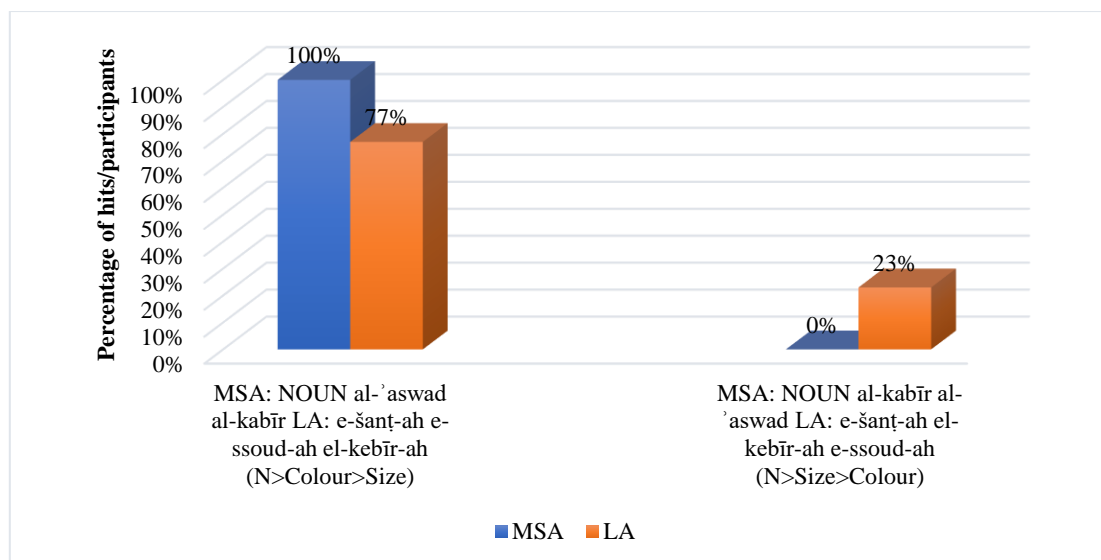
   'The big black bag'

Figure 6. Colour and size adjectives

As can be seen from the graph, all of the 19 instances analysed for MSA represented the order N > Colour > Size, but the reverse order given in (32b) is ostensibly ruled out. The searches for the orders in (33a,b) for LA, on the other hand, have shown that these orders are acceptable for Libyan speakers. Once again, the participants were asked if there was any semantic difference between the two orderings selected, and 3% reported that the first order was the norm whereas the second (i.e. when *e-ssoudah* (DEF-black) is postposed) is more associated with emphasis. By way of explanation, it is used to distinguish one big bag from others. This is reasonable as it aligns with what was reported by the informants in the previous sections.

Does Arabic Follow the Universal Hierarchy?

This section shows that each of the adjective sequences discussed above in both MSA and LA adhere to the universal hierarchical order. The violation occurred particularly in LA which can be justified by some contextual factors, such as emphasis and focus. No patterns of differences were observed between the inter-speakers of the current study and their place of origin. Therefore, the discussion of the adjective ordering will only be the two main varieties of Arabic selected for the purpose of this study, namely MSA and LA.

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Starting with MSA, Table 6 summarizes the main findings from OAC for the variety in question. All the acceptable adjective orderings have been listed with either (✓) if it respects the universal hierarchy or (✗) if it does not.

Modifiers	Possible acceptable orders	Follow the hierarchy?
many, Adj	*many* > N > Adj	✓
only, *primary*	N > *primary* > *only*	✓
only, *big*	N > big > only	✓
Manufacture, Size	N > Manufacture > Size	✓
Provenance, Colour	N > Provenance > Colour	✓
Colour, Size	N > Colour > Size	✓

Table 6. Summary of Results in MSA

All the possible orderings of adjectives in MSA follow the universal hierarchy (Fehri, 1998, 1999) which is reproduced in (34) and (35). The selection of orderings in Table 6 suffices to demonstrate that the principle of the semantically based adjective ordering does operate at least in the light of the data gathered for this study.

(34) Quantifier>Noun>Adjective OR Noun>Adjective>Quantifier

(35) Noun>Manufacture>Nationality>Colour>Age>Size>Evaluative

Each pair of adjective orderings in MSA, as listed below, is unmarked, thus obeying the MIO. Since the main focus is on the order of the elements within NPs, glosses for gender and number are not indicated here.

(36) *ʿiddatu*   *madārisin*   *ibtidāiyyatin*   ***many* > N > Adj**

 many   schools   primary

 'Many primary schools'

(37) *al-ibtidāiyyati*   *al-waḥīdati*   **N > primary > *only***

DEF-primary   DEF-only

'The only primary school'

(38) *al-kabīr*   *al-waḥīd*   **N > big > only**

DEF-big DEF-only

'The only big NOUN'

(39) *al-χašabiyyah*   *al-kabīrah*   **N > Manufacture > Size**

DEF-wooden   DEF-big

'The big wooden NOUN'

(40) *al-ʾaswad*   *al-kabīr*   **N > Colour > Size**

DEF-black   DEF-big

'The big black NOUN'

(41) *al-ʾalmanī*   *al-ʾaḥmar*   **N > Provenance > Colour**

DEF-German   DEF-red

'The red German NOUN'

While most classes adhere to the order given in (35), the colour class varies to whether it follows or precedes provenance. It has already been discussed that the order N > Colour > Provenance is possibly available when the colour term appears as part of a collocation or as a categorising modifier.

Turning now to the case of LA, the data collated from the survey conducted on the dialect in question are presented in Table 7.

Modifiers	Possible acceptable orders	Follow the hierarchy?
many, Adj	a. *many* > N > Adj	✓
	b. N > *many* > Adj	✗
	c. N > Adj > *many*	✓
only, *primary*	a. N > *primary* > *only*	✓
	b. N > *only* > *primary*	✗
only, *big*	a. N > *big* > *only*	✓
	b. N > *only* > *big*	✗
Manufacture, Size	a. N > Manufacture > Size	✓
	b. N > Size > Manufacture	✗
Provenance, Colour	a. N > Provenance > Colour	✓
	b. N > Colour > Provenance	✗
Colour, Size	a. N > Colour > Size	✓
	b. N > Size > Colour	✗

Table 7. Summary of Results in LA

Table 7 is revealing in several ways. First, the data clearly indicate a great variation in terms of the ordering adjective classes compared to MSA. Irrespective of the violation, the proposed hierarchy also tends to be true for LA. The following examples are given as neutral.

(42) a. *medāris*　　*ibtidāiyyah*　　*wājdah*　　　　　**N > Adj > *many***

　　　schools　　　　primary　　　　many

　　b. *wājdah*　　*medāris*　　*ibtidāiyyah*

　　'Many primary schools'

(43) *el-maḥel*　　*el-kebīr*　　*el-waḥīd*　　　　**N > Adj > *only***

　　DEF-shop　　DEF-big　　　DEF-only

　　'The only big shop'

(44) *e-ṭawl-ah*   *e-lauḥ*   *el-kebīrah*   **N > Manufacture > Size**

     DEF-table   DEF-wooden   DEF-big

     'The big wooden table'

(45) *el-gifṭān*   *el-ʾalmānī*   *el-ʾaḥmir*   **N > Provenance > Colour**

     DEF-dress   DEF-Arabic   DEF-red

     'The red German dress'

(46) *e-šanta*   *e-ssoudah*   *el-kebīr-ah*   **N > Colour > Size**

     DEF-bag   DEF-brown   DEF-big

     'The big black bag'

This indicates that the semantic factor proposed by Bache (2000), Dixon (1982) and Payne and Huddleston (2002) plays a significant role here. In addition, the ordering of adjectives with respect to quantifiers in LA tends to obey the hierarchy, as given in (35) above, which is similar to MSA. Regarding *wājid* ('many') and *waḥīd* ('only') in LA, they arguably share similar semantic and syntactic properties, which makes one assume that *wājid* seems to behave in the same way as *waḥīd*. The two syntactic items might be explained by the idea of scope and focus. The former refers to the syntactic expression which is the whole NP including the noun and its adjective, and the latter denotes a particular element within the scope which is picked out (Huddleston, 2002). The focus is presumably on the whole phrases that precede *wājdah* and *el-waḥīd,* in (42) and (43) respectively, which imply that there are other schools which are not primary and some other shops which are not big. The focus is seemingly on the noun and its dependent; namely, *medāris ibtidāiyyah* in the case of *wājdah* in (42) and *el-maḥel el-kebīr* in the case of *el-waḥīd* in (43).

We turn now to the analysis of *wājid* and *waḥīd* when they move between the head noun and its dependent, which will be shown in examples (47) and (48). It becomes obvious that the

focus in these examples tends to be only on the noun; namely, *medāris* in (47) and *el-maḥel* in (48) and this is manifested by its closeness to the noun.

(47) *medāris*   *wājdah*   *ibtidāiyyah*

        schools   many   primary

        'Many good schools'

(48) *el-maḥel*   *el-waḥīd*   *el-kebīr*   *fi*   *el-menṭaqah*

        DEF-shop   DEF-only   DEF-big.M.SG   in   DEF-area

        'The only big shop in the area'

The generalisation one could make, as far as those examples are concerned, is that those items might have special syntactic behaviour in order to indicate their scope.

    With reference to the other adjectives, size follows manufacture, colour follows provenance and finally size follows colour, which is all in line with the order in (35). The corresponding reverse orders are also possible:

(49) *e-ṭawl-ah*   *el-kebīrah*   *e-lauḥ*   **N >** *Size* **> Manufacture**

        DEF-table   DEF-big   DEF-wooden

        'The big wooden table'

(50) *el-gifṭān*   *el-ʾaḥmir*   *el-ʾalmānī*   **N >** *Colour* **> Provenance**

        DEF-dress   DEF-red   DEF-German

        'The red German dress'

(51) *e-šanṭah*   *el-kebīr-ah*   *e-ssoudah*   **N >** *Size* **> Colour**

        DEF-bag   DEF-big   DEF-black

        'The big black bag'

As seen from the examples above, there are some cases where no semantically fixed order of adjectives is found at all. The appearance of the co-occurring adjectives tends to be entirely

determined by some external factors, such as FOCUS. *El-kebīrah* in (51) moves closest to the head noun when it is emphasised. This is perhaps permitted in contrastive contexts. Similarly, the example in (50) refers to a situation where *giftān* is taken as a given subset of dresses and the red one is contrastively focused.

Having considered all the variations in LA and the justification of their departure from the hierarchy, one could claim that, based on the findings of the present study, a relative fixed adjective ordering within nominal expressions does exist and the flexibility of the ordering might be allowed in the case of the speaker's intended information-packaging. Interestingly, the adjective ordering is very much the same one given in the literature in terms of its distance from the modified noun, the adjective which is contrastively focalised and the innermost item in the hierarchy. Similar observations were made by Scott (2002). Nevertheless, the sole difference between Scott's (2002) finding and the point made here is that in the former the focused adjective is the outermost in an example like *a BLACK big bag*, but here it seems to be the innermost, as shown in (51).

Conclusion

This paper has investigated the ordering of attributive adjectives in MSA and LA. It investigated the order of adjectives in general with respect to quantifiers. In addition, it examined the two levels of classification of adjectives:

(a) the more global functional one including the three main types of adjectives: specification, description and classification, and

(b) the narrower semantic types including adjectives of manufacture, colour, size, and provenance.

The study aimed to assess the extent to which the ordering of those types of adjectives in the language in question respects the universal hierarchical MIO.

There are several significant conclusions that can be drawn from the current study. The first is that MSA and LA are in line with the universal MIO to some extent, although the ordering in LA tends to be freer. For almost every single ordering there is a reverse order, which can be used under certain circumstances. In other words, adjectives could escape ordering hierarchy and the reverse order, in that case, becomes possible due to the contrastive effects. Second, following the hierarchy simply means that adjectives are ordered according to the three main communicative functions: classification, description and specification.

One shortcoming levelled at the current study is that there is a difference in form between the two varieties under discussion, MSA is written and LA is spoken. Spoken language tends to have looser syntax (Calude, 2008) which could reflect on the type of ordering exhibited in the language. Additionally, although every effort was made to make the survey as informal as possible, the use of a survey could mean that the participants might have altered their language throughout, saying what they feel they ought to say rather than what they would say in normal conversations.

Several limitations need to be taken into consideration. First, some sequences of adjectives have been excluded from the study due to their ordering freedom (Hetzron, 1978). Those adjectives include the ones connected with coordinators, for example, *ʾaḥmar wa kabīr/ kabīr wa ʾaḥmar* ('red and big'/ 'big and red') and the ones that modify only the following adjective in the same sequence and not the noun, such as *kitāb ʾazraq dākin* 'a dark blue book'. Second, the study is limited to written Arabic for MSA and to Libyan performance in spoken Arabic for the Libyan dialect. Next, only some adjectives were exhaustively examined, first of all because providing all the semantic types of adjectives is beyond the scope of the study, and second, there is far less agreement in the literature regarding how many semantic categories of adjectives exist (Scott, 2002). Finally, the focus of the paper was on the semantic and syntactic differences between the two varieties of Arabic; no mention was made of any sociolinguistic

factors. However, the issue of the effect of sociolinguistic factors might be an intriguing one which might be usefully explored in further research.

The overall syntactic system of LA can be investigated in depth in future studies comparing its syntactic system to some other modern Arabic dialects. It is hoped that this study despite its limitations has offered a modest contribution to the field of Arabic syntax and semantics in general, and the information provided has been an important supplement of the rather scarce data available on the syntax of MSA and LA.

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Appendix 1

The survey

Hi. Thanks for participating in our research study about the Libyan dialect. There are no known risks if you decide to participate in this research study. Your choice of participation is going to be voluntary. The information you provide in this questionnaire will be used only for research purposes in this study. The questionnaire will take approximately 5 minutes to complete.

It will not be used in a manner which would allow identification of your individual responses. To put it another way, no one will be able to identify you or your answers, and no one will know whether or not you participated in the study.

By completing the survey below into the Libyan dialect, you are voluntarily agreeing to participate and giving us permission to contact you with any follow-up questions or for further clarification. You are free to decline to answer any particular question you do not wish to answer for any reasons.

Which of the following sentences would Libyans naturally say? Please choose what you think is naturally said rather than what should be said.

Please state your age and occupation

_____

Question 1.

a. المدرسه الابتدائيه الكبيره

The school the primary the big

b. المدرسه الكبيره الابتدائيه

The school the big the primary

Other (please specify)

_____

Question 2.

a. المدرسه الوحيده الابتدائيه في المنطقه

The school the only the primary in the area

b. المدرسه الابتدائيه الوحيده في المنطقه

The school the primary the only in the area

Other (please specify)

_____

Question 3.

    a. الطاوله الكبيره اللوح

    The table the big the wooden

    b. الطاوله اللوح الكبيره

    The table the wooden the big

    c. الطاوله الكبيره متع اللوح

    The table the big of the wood

Other (please specify)

Question 4.

    a. اللبسة الألمانية الحمرة

    The dress the Arabic the red

    b. اللبسة الحمرة الألمانية

    The dress the red the Arabic

Other (please specify)

Question 5.

    a. الشنطه الكبيره السوده

    The bag the big the brown

    b. الشنطه السوده الكبيره

    The bag the brown the big

Other (please specify)

Question 6.

   a. الدكان الوحيد الكبير في المنطقه

     The shop the only the big in the area

   b. الدكان الكبير الوحيد في المنطقه

     The shop the big the only in the area

Other (please specify)

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Question 7.

   a. طلبه واجدين كويسين في المدرسه هدي

     Students many good in the school this

   b. طلبه كويسين واجدين في المدرسه هدي

     Students good many in the school this

Other/comment

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Question 8.

   a. المدرسة ابتدائية

     The school primary

   b. المدرسة هدي مدرسة ابتدائية

     The school school primary

Question 9.

   a. المدرسة وحيدة

   b. المدرسة مدرسة وحيدة

Question 10.

There are several students from different nationalities, but they are students of the English language (i.e. they are all studying the Italian language). How would you say that 'one male student of the Italian language who is the best one in the classroom has won a prize' (please use the words 'best', 'Italian' and 'student' in your answer)

Question 11.

There are several students of the Italian nationality. How would you say 'the best Italian student has won a prize'?