

**Cultural and linguistic guidelines for language evaluation of Arab-American children using the Clinical Evaluation of Language Fundamentals (CELF)**

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**Part I: The Cultural and Linguistic Background  
of Arab-Americans**

## Introduction

Based on the 2000 census, Arab Americans comprise 0.42% of the population in the United States (U.S.). The Arab-American population in the United States has been showing a steady increase since the 1980s (US. Bureau of the Census, 2005)<sup>1</sup>. Similar to other minority populations in the U.S., there has been a corresponding increase in the number of children referred for language assessment from this specific cultural and linguistic background. It is one of the top ten languages among English Language Learners (LLEs) in the U.S. (Batalova & Margie, 2010).

Arab-Americans, as part of the diverse Arab population, compose a heterogeneous group; they come to the U.S. from countries in the North African region (such as Morocco), the Mediterranean region (such as Jordan), or the Arab Gulf region (such as Qatar) (Al-Hazza & Lucking, 2005) and may belong to a variety of religious faiths such as Islam, Christianity, Druze or Judaism. Despite these differences, Arab-Americans share historical memories, cultural values, cultural practices and Arabic as a native language<sup>2</sup>(Khamis-Dakwar & Froud, 2012).

Most of the literature guiding Speech-Language Pathologists (SLP) in the assessment and treatment of Arab-American children is based on documented experiences from working with children in the Arab world, specifically Saudi-Arabia (e.g. Wilson, 1996, 1998). This information might have limited applicability due to the diversity of the Arab-American population and the specific differences between Arab

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<sup>1</sup> These results are based on official Census Bureau estimates, which are debated by Arab-American

<sup>2</sup> Note that Arabic-speaking communities exhibit *diglossia*, a sociolinguistic situation in which two language varieties exist: a “low” language variety, which is the spoken dialect acquired naturally and used for daily communication; and a “high” language variety, the Modern Standard Arabic (MSA), which is learned in school and is used for reading and writing and in formal settings. Even though all Arabs share Arabic as a native language, the native language dialects differ from one region to another.

children raised in the U.S. and the Arab world. Such differences may include but are not limited to: a child's amount of exposure to Arabic, available formal teaching of Arabic, exposure to one or more of the various Arabic spoken dialects, and identity differences. In the first part of this resource, we give a general overview of the Arab population in the U.S. and we describe dialectal differences within Arab-American populations that are likely to impact language assessment and SLP intervention services for Arab-American children. More specifically, we provide a brief overview of the linguistic features of the Arabic dialects in the Gulf, North Africa, and the Levant. We later discuss the sociolinguistic phenomenon of diglossia, its relationship to Arabic literacy in Arab-Americans, and the more specific need to distinguish between heritage and non-heritage students in assessing speech-language and literacy abilities of the Arab-American child. This resource will also provide basic information on the status and development of the field of speech-language pathology in the Arab world and in the U.S. with a focus on its effect on SLP services to Arab-American students. Finally, we provide basic linguistic guidelines for language evaluation of Arab-American children using the Clinical Evaluation of Language Fundamentals Fourth Edition (CELF-4).

This resource has been developed with the support of an ASHA grant program on multicultural activities. I very much appreciate the professional support that has been granted to me through this funding, and I am grateful for ASHA's commitment to enhance SLP assessment of children from culturally and linguistically diverse (CLD) populations. Moreover, I am particularly grateful to the esteemed linguists and SLPs who contributed to this resource. This project is a testimony to the power of multidisciplinary collaboration, as combining knowledge from the fields of speech-language pathology and

linguistics has the potential to inform how speech and language clinical evaluations are conducted. A special thanks to Dr. Abbas Benmamoun, a revered linguist in the study of Arabic linguistics, who in spite of his busy research lab and life, has generously contributed to this resource by writing on Egyptian and Levantine Dialects. I would also like to say thank you to Dr. Hamid Ouali, who shared his expertise with us and prepared an extraordinary linguistic resource on Moroccan Arabic in contrast to English features; as well as to Dr. Tommie Leung for his exceptional contribution on Emirati Arabic; Heather Green, CCC-SLP for her assistance in data collection and analyses, and finally a special thanks to Dr. Heidi Alaskary, CCC-SLP for her contribution on cultural background and guidelines as well as her input and support along the way. Please, feel free to contact me at [ASHAmulticulturalArabic@gmail.com](mailto:ASHAmulticulturalArabic@gmail.com) with comments and suggestions as this is a continually developing resource.

## **Section I: Introduction to Arab Americans**

There are an estimated 1.3 million Arab Americans in the United States (U.S. Census Bureau, 2000) <sup>3</sup> coming from various countries of origin, with different religious affiliations<sup>4</sup> (Muslims, Christians, Druze, and Jews), and of various socio-economic status<sup>5</sup>. It is believed that all individuals in this population share Arabic as their native language as well as common Arab cultural values. Nevertheless, there are vast linguistic and/or cultural differences within and among the Arab individuals from different countries living in the US.

### **Ethnicities and U.S. Geographical Region**

Arab-Americans come from 22 countries and the Palestinian occupied territories. These countries are usually divided into “Machrek” (Eastern), “Maghreb” (Western) and gulf regions. Generally speaking, “Machrek” refers to countries to the east of Egypt and north of the Arabian Peninsula, “Maghreb” refers to countries west of Egypt in North Africa, and gulf refers to countries bordering the Persian Gulf.

The Arab-American community is a mosaic of the Arab world and its linguistic and cultural diversities. According to the 2000 U.S. Census, the largest groups of Arab Americans identified themselves as: Lebanese (more than 28.8% of the total Arab-American population), Egyptian (14.5%), Syrian (8.9%), Palestinian (7.3%), Jordanian (4.2%), Moroccan (3.6%) and Iraqi (3.5%). Yemeni, Kurdish, Algerian, Saudi Arabian, Tunisian, Kuwaiti, Libyan, Berber, or other specific Arab ancestries accounted for one

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<sup>3</sup> Zogby 2001 suggests that census figures undercount the Arab-American population since there is not an Arab category of ption in the census, estimating that there are actually more than 3 million Arab Americans.

<sup>4</sup> All Arabs are influenced by Islam, though not all Arabs are Muslims (Fellure & Thornton, 2009).

<sup>5</sup> This is contrary to the popular portrayed image of Arabs as billionaires in popular entertainment media (Shaheen, 1984, Erickson & Al-Timimi, 2001)

percent or less of the total Arab population each.<sup>6</sup> Table 1 lists the percentage of Arab-Americans coming from Arab countries around the world.

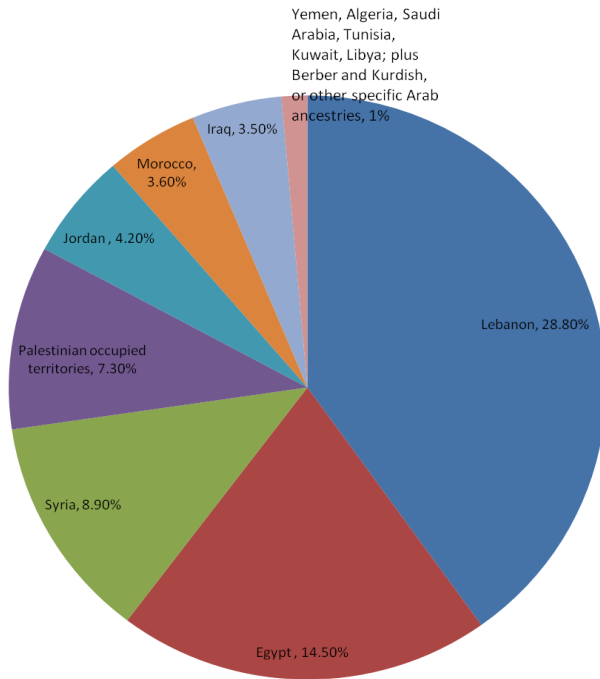


Table 1: Arab Americans and country of origin (Source: U.S. Census 2000).

As of the 2000 U.S. Census, 0.6 percent of the total Northeastern population was of Arab descent, whereas 0.3 percent of the total southern population was of Arab origin. The 10 cities with the largest Arab populations were: New York, Dearborn, Los Angeles, Chicago, Houston, Detroit, San Diego, Jersey City, Boston, and Jacksonville.

### Religion

Although the majority of Arabs in the Arab world are Muslims, only 23% of Arab-Americans are Muslims, while 77% are Christians (Zogby, 2001)<sup>7</sup>. The Arab world population also consists of Arab Druze and Jewish people living in Arab countries.

<sup>6</sup> Note that Kurds, Turks, Iranians, Afghans, Armenians or Pakistanis are not considered Arabs.

<sup>7</sup> It should be noted that these percentages may change with the different waves of immigration. For example, before 1950s, 90 percent of Arab Americans were Christians.

Accordingly, SLPs working with Arab-American individuals and families should be aware of all religious affiliations and should not assume a Muslim identity as the default religion.

### **Education and Socioeconomic Status**

Based on the U.S. Census, Arab-Americans are reported to have a higher level of education in comparison to the general U.S. population, with more than 40% of Arab-Americans having at least a bachelor's degree, compared to only 24% of other Americans (Brittingham & De la Cruz, 2005). Given these reported high educational achievements of Arab-Americans in comparison to the national average, there is a corresponding higher median income of Arab-American households (\$52,300) in comparison to the national median (\$50,000) based on the U.S. Census. However, despite higher median incomes for Arab-Americans, there are also reports of higher poverty rates in the Arab-American population (17 percent) in comparison to that of the total U.S. population (12 percent) (Brittingham & De la Cruz, 2005).

### **Special Considerations**

After the 9/11 attacks and due to the current political climate, Arab-Americans report being fearful of hate crimes, anxious about their future and safety, a loss of a sense of community, and feeling isolated and stereotyped (Abu-Ras, 2008). Thus, Arab-Americans may show psychological distress and depression similar to trauma responses (Abu-Ras, 2008; Padela, & Heisler, 2010). Due to this climate, Arab-Americans may be hesitant to trust health and education providers. Therefore, it is imperative for clinicians to be aware of these possible barriers and to acknowledge the fears and mistrust that may affect assessment and/or therapy dynamics.

To conclude this section, SLPs need to expand their knowledge beyond the generalizations and stereotypes that are typically associated with Arab-Americans. Taking into consideration the diversity among the Arab-Americans in terms of ethnicity,



place of living, religion, and socioeconomic situation will enhance clinician sensitivity and orientation for effective service implementation.

## **Section II. Arabic language:**

Similar to the diversity within the Arab population discussed in the previous section, the Arabic language is characterized with high variability as well. Many Arabic textbooks maintain that there is only one true Arabic: Modern Standard Arabic (MSA) or Classical Arabic (CA). This doctrine does not take into account the existence of diglossia in Arabic speaking communities. Diglossia refers to a sociolinguistic situation marked by the availability of *High* (CA or MSA) and *Low* language varieties (local or regional dialects) that are in complementary functional distribution (e.g., Ferguson, 1959). CA is the form of Arabic that is used in the *Qur'an*, and still permeates all religious ceremonies, and MSA is “the written language of contemporary literature, journalism, and formal education ... [it] is the standard written Arabic of the entire Arab world, linguistically unifying it today as CA once did” (Abu-Melhim, 1992, p. 3). CA and MSA are taught through formal education.

Spoken regional dialects termed by Ferguson (1959) as low language varieties are used for daily communication and are acquired naturally as the mother tongue (Ferguson, 1959). There are reports of a fourth form of Arabic; the Educated Standard Arabic (ESA) or Common Educated Arabic that “draws upon both MSA and Colloquial Arabic” (El-Hassan, 1978, p. 32). Arab speakers use this form of Arabic when conversing with one another in educational contexts.

The focus on the high language variety in the traditional linguistic study of Arabic has impacted speech and language services. For example, the New York State Education

Department (NYSED) Bilingual Education Assessment (BEA) is a language proficiency test. The BEA is a requirement of the bilingual extension for childhood educators, special educators, and SLPs and examines proficiency in MSA instead of the language variety used for daily communication. Similarly, Patel & Khamis –Dakwar (2005) point out that clinical resources such as the picture communication system (Johnson, 1981,1985) are presented in MSA, which is not the language of communication for Arabic-speaking children and may even be unavailable to Arab-American children. There is a general consensus that the differences between MSA and spoken Arabic are manifest in all language domains (phonology, morphology, syntax, semantics and pragmatics). Due to the linguistic and acquisition differences between spoken Arabic and MSA, some researchers suggest that MSA can be viewed almost as a second language (Ayari, 1996; Eviaar & Ibrahim, 2000). Recent neurophysiological studies investigating neural responses to diglossic codeswitching show that codeswitching between the two language varieties at the lexical level elicited brain responses reported to be found for switches between languages (such as English and Spanish) in the literature (Khamis-Dakwar & Froud, 2007; Khamis-Dakwar, Boudella & Froud, 2009).

Based on the literature on Arabic diglossia and the nature of acquisition of MSA it can be concluded that MSA competence should not be automatically assumed for Arab-Americans since it is taught only through formal education, which is not available to all Arab-Americans.

### **Arabic Dialects**

Spoken Arabic varies widely along geographical, religious and socio-economic lines from one Arab country to another and from one community to another within the

same country (Holes, 1995). For example; Arabic dialects can be divided into different geographical categories such as Egyptian, Syrian, and Iraqi dialects. These dialects can be further broken down into subdivisions. For example, the Egyptian dialect can be divided into three types along geographical lines: Urban (e.g. Cairo and Alexandria), rural (mostly in Upper Egypt), and Bedouin dialect (in the Sinai and Western Egyptian desert). Moreover, more variety exists within each dialectal-speech community on the basis of gender and other social factors (Holes, 1995; Al-Toma, 1969).

There are many different types of major Arabic dialects. A few examples of Arabic dialects that differ from country to country are: Algerian Shahrani Arabic (spoken in Algeria), Baharna Arabic (spoken in Bahrain), Chadian Arabic (spoken in Chad), Cypriot Arabic (spoken in Cyprus), Dhofari Arabic (spoken in Oman), Egyptian Arabic (spoken in Egypt), Gulf Arabic (spoken in Iraq and the Arabian Peninsula), North Levantine Arabic (spoken in Syria), South Levantine Arabic (spoken in Jordan), Najdi Arabic (spoken in Saudi Arabia), and Shihhi Arabic (spoken in the United Arab Emirates) (Ethnologue, 1997). While all these dialects are sub-forms of Arabic, it is important to note that “one characteristic of these colloquial varieties [dialects] is that they may not be mutually intelligible to speakers of other regional colloquial [dialects]...[and that] sometimes even within the boundaries of a particular country [these dialects] are not mutually intelligible” (Abu-Melhim, 1992, p. 4 & 7). To further illustrate the mutual unintelligibility of the language Al-Ani (1970) stated “the differences in the phonology, morphology, and syntax of these dialects are often so great that verbal communication between an illiterate Egyptian and an illiterate Iraqi, whether they be towns people or peasants, is difficult if not impossible” (p.18). This highlights the need

for dialectal differences to be considered when making decisions regarding language/dialect of assessment and intervention.

For the sake of this resource, we will be providing general linguistic information about the following dialects: Emirati, Egyptian, Levantine, Moroccan, and Yemeni. Please note that this is a very general description provided to assist the SLP in evaluating children’s English abilities and the possible transfer effect of the different Arabic dialects on English production.

**Gulf Arabic.** Gulf Arabic (GA), known as ‘al-khaliji’, refers to the particular Southern Arabic dialect as widely recognized in countries around the Arabian Gulf, i.e. Kuwait, Eastern Saudi Arabia, Bahrain, Qatar, Bahrain, Oman, the United Arab Emirates, South-western Iran and Zubair area of Iraq (Lewis 2009). Mutual intelligibility between the varieties of GA is high, if not total, while there is slight variation in terms of allophonic variations and special vocabulary (Holes 1990, AVIA).

**Phonetics and phonology.** The following are a list of GA phonemes, based on the variety as spoken in the United Arab Emirates. Arabic scripts are also shown for further references. Compared with Modern Standard Arabic, in GA, a single Arabic letter may correspond to more than one phonemic transcription and two (or more) Arabic letters may share the same pronunciation. The sounds highlighted in blue are not represented in the English inventory (adopted primarily from Ntelitheos 2011 and AVIA) and the consonants that are highlighted in green represent those that occur in English but not GA.

IPA	Arabic	IPA	Arabic	IPA	Arabic	IPA	Arabic
/θ/	ث	/g/	ق	/ɣ/	غ (Kuwait) ق	/n/	ن
/ð/	ذ	/k/	ك	/h/	ه	/s <sup>s</sup> /	ص

/zˤ/	ظ	/ʔ/	أ(hamza)	/ħ/	ح	/s/	س
	ض	/q/	ق	/ʕ/	ع	/ʃ/	ش
/b/	ب	/tʃ/	ك	/l/	ل	/r/	ر
/t/	ت	/dʒ/	ج	/lˤ/	ل	/w/	و
/tˤ/	ط	/f/	ف	/z/	ز	/j/	ي ج ق (Kuwait)
/d/	د	/x/	خ	/m/	م		
/i/		/i:/		/ej/ or /aj/			
/a/		/a:/		/aw/			
/u/		/u:/					
/ə/		/e:/					
		/o:/					
/p/		/ʒ/					
/v/		/ŋ/					

### ***Syllabic Structure***

The prototypical syllabic structure is (C)CV(:)(C)(C) and the vowel can be long or short. The onset clusters usually occur when a prefix/proclitic is attached to the host, e.g. [jhajjiik], [sʕiid], etc. Clustered codas are frequent, eg. [bint] and gemination is possible and widespread, e.g. [ʃəʔtˤtˤ], [lˤlˤah], etc.

***Morphology.*** Similar to other Arabic dialects, GA nouns do not exhibit morphological case, whereas gender, number and definiteness can be expressed by bound morphemes. An asymmetry of agreement is expressed by nouns and verbs, with nouns showing all numbers (singular, plural, dual), whereas verbs do not exhibit dual agreement (Holes 1990).

In Arabic, both ‘broken’ and ‘sound’ plurals can be found. Examples of broken plurals involve internal vowel change, e.g. [suuq] ‘market’ vs. [ʔaswaaq] ‘markets’. Compared with other Arabic dialects, GA is relatively impoverished in the use of modal or temporal markers. In addition, while a particular morpheme, e.g.. *b*-prefix, can be found in other Arabic dialects (e.g. Egyptian), its semantic meaning is different. For

instance, in GA, the *b*-prefix expresses future and intention, which is not found in other dialects (Persson 2008).

**Syntax.** The unmarked word order of GA is SV-DO-IO-Adv. Word order change is allowed for the purpose of focus or topicalization. This is similar to other Arabic dialects. Most grammatical properties of GA are similar to Modern Standard Arabic (MSA). In particular, the following morphosyntactic properties contrast significantly with those in English. First across Arabic dialects, the expression of perfective (cf. English ‘John *has eaten*’) and imperfective (cf. English ‘John *is eating*’) aspect in GA, though mutually distinct, is morphologically regular. In addition, subject-verb agreement in terms of number and gender depends on the identity of the subjects, e.g. animacy (Holes 1990).

**Pronoun clitics.** In GA/MSA, object pronoun clitics are suffixed to nouns (in possessives), verbs (as direct objects), prepositions (as direct objects), and complementizers (as subjects of the embedded clause) (Holes 1990). That is to say, unlike English (e.g. ‘John likes *her*’), object pronouns cannot stand on alone.

1st person sing.	/-i/, /-ni/, /-nu/	plural	/-na/, /-ne/
2nd person masc. sing.	/-k/, /-ək/	Plural	/-kum/
2nd person fem. sing.	/- ʔ/, /-iʔ /	Plural	/-kin/
3rd person masc. sing.	/-a(h)/, /-e(h)/, /-u(h)/	Plural	/-hum/
3rd person fem. sing.	/-ha/	Plural	/-hin/

**Negation.** GA’s negation is typically different from that of MSA. Instead of MSA ‘laysa’ and various tenses on ‘laa’ (e.g. *laa, lan, lam*), GA productively uses ‘ma’ as the negative marker. Similar to other Arabic dialects, ‘ma’ does not take any tense marking, instead assuming different forms depending on to what it is prefixed. There exists a distinction between verbal negation and predicate negation, and moreover negation of

pronouns:

*Verbal negation:* [ma]-verb, e.g. [ma-araf] ‘I don’t know’

*Predicate negation:* [mub]-predicate, e.g. [mub-hini] ‘not here’

*Nominal negation:* [miʃ]-noun, e.g. [miʃ il-boof] ‘not the livestock.’

*Pronominal negation:* [ma-b]-pronoun, e.g. [ma-b-ana] ‘not me’

GA negation is different from other Arabic dialects (particular Moroccan and Egyptian) in that only a prefixal [ma] can be found across GA dialects, whereas in Moroccan/Egyptian Arabic, the combination (or discontinuous morpheme depending on the theory) [ma...shi] is productively used (Benmamoun 2000, Brustad 2000). It should be noted that in some particular GA dialects, e.g. Shehhi Arabic (spoken in some areas of Ras al-khaimah of the UAE, and some parts of Oman), the negative marker is ‘la’ and it is suffixed to (instead of prefixed to) the head, e.g. [araf-la] instead of [ma-araf], [bint-la] instead of [mub-bint] ‘not a girl’, etc (Leung 2009).

**Construct State.** One notable property in GA/MSA is its possessive construction, or famously called *iDaafa* ‘construct state’. It is formed by the configuration ‘possessed the-possessor’, in which the determiner attaches to the possessor (Holes 1990) in contrast to English that uses the possessive marker /s/.

- (1) a. sayyaarat il-mudiir ‘car the-boss’ (the boss’s car)
- b. muʃkilat il-dʒaamiʃ ‘problem the-university’ (the university’s problem)

**Relative clause.** Relative clauses in GA have the following properties: (i) they obligatorily require the presence of a resumptive pronoun, (ii) the relative marker [illi] is obligatorily required in the case of definite relatives, but absent in indefinite relatives.

There is no indefinite marker in GA.

- (2) a. mara zabbarat ʃala wildik. (indefinite relatives)  
    woman scolded-she on son-your ‘A woman who scolded your son’



- b. l-mara illi zabbarat ʕala wildik. (definite relatives)  
 the-woman that scolded-she on son-your ‘The woman who scolded your son’

In daily conversation, however, there exist cases in which an indefinite head noun can be relativized by [illi], especially if the head noun expresses a high degree of specificity (e.g. indefinite specific) (Brustad 2000).

**Wh-questions.** Wh-questions in GA are similar to English in which the wh-word is placed sentence-initially. In some other cases, wh-words can be in-situ (echo-questions). Yes-no questions are created by rising intonation toward the end of the sentence. What is special about GA (and other dialects of Arabic) is the use of wh-cleft, i.e. a fronted wh-word is followed by a relative structure (signaled by the presence of the relative marker [illi]) (Aoun et al. 2010, Leung and Al-Eisaei 2010), e.g. (3b):

- (3) a. ʃu ʔɛʃtr-ɛt ʔmes?  
 what bought-you yesterday ‘What did you buy yesterday?’  
 b. ʃu illi ʃtɔr-eet-ah ʔams?  
 what that bought-you-it yesterday ‘What did you buy yesterday?’  
 c. istaanastaw ween?  
 enjoyed-self-you where ‘you have a good time where?’  
 d. axuu-k Tallag zoojt-ah?  
 brother-your divorced-he wife-his ‘Your brother divorced his wife?’

**Implications for clinical practice.** Early Arabic learners of English may exhibit the following articulation and morphosyntactic differences due to transfer effects from Arabic to English. SLPs are encouraged to be cognizant of these differences in order to differentiate between a language disorder versus difference.

- Phonology
  - Substitution of consonants from the GA phonological inventory for English specific consonants. i.e. b/p, f or w/v, ʒ/dʒ, n/ ŋ

- Substitution of vowels from the GA phonological inventory for English specific vowels. This is due to the fact that English contains twice as many vowel sounds than are found in GA.
- Gemination, a prolonged production of a sound, sometimes referred to using the term “identical clusters” (Al-ani, 1970, p.77) is common in GA. Gemination could be mistaken for cluster reduction in the speech of speakers of GA and other Arabic dialects. It is important to distinguish between the presence of germination and cluster reduction in children’s productions of English clusters (e.g SLPs need to discriminate between the production of /sso/ and /so/ for snow, or /læmm/ and /læm/ for lamp).
- Morphosyntactic
  - Several inflectional free morphemes in English are bound morphemes in GA. As a result some early learners of English may delete free morphemes. For example when asked the question, “Whose bear is this?”, an early learner of English may answer “the boy” instead of “his”.
  - GA lacks a possessive marker. This difference may be observed is the deletion of possessive markers (e.g. King crown for King’s crown). It is also quite possible that GA speakers also use the periphrastic ‘N1 of N2’ construction in addition to the construct state 'N2 the-N1'. This exact statistical comparison is not clear yet and need to be addressed in a corpus study. However, it would be expected, that possessive constructions such as 'King's Crown' may become 'crown of king' or even 'crown belong king' for GA speakers of English.

- GA word order varies from that of English. In GA there are several accepted word order structures that may interfere with children's utterances. Moreover, the direction may be different in the two languages and a child may use the GA word order in English (e.g. "hat big" for "big hat"). Speakers from Ras al-khaimah of the UAE may suffix the negation marker instead of prefixing it (i.e. "this is mine not" for "this is not mine").
- Deletion of the relative marker in indefinite relative but not definite relative structures may be observed (e.g. In response to the question, "What do you want to be when you grow older?" the child may respond "An astronaut flies to the moon" for "An astronaut who flies to the moon.")
- GA learners of English may use in-situ question structures such as "You are playing what?" instead of "What did you play?"

**North African Arabic.** North African Arabic dialects spoken in the so-called Maghreb have a few linguistic differences among each other, but as a group they share a lot of linguistic features that set them apart from the "eastern dialects". The following is an overview of the main grammatical properties of these dialects. This section will outline phonetic and phonological features, discuss morphological properties, and summarize syntactic features of these dialects. A short comparison with English will be given at the end of each section highlighting differences between North African Arabic and English.

**Phonetics and phonology.** North African dialects retained similar phonetic inventory of Modern Standard Arabic. While Tunisian Arabic (TA) contains interdental, Moroccan Arabic (MA) and Algerian Arabic (AA) do not. The following table shows the consonant inventory of North African dialects:

*Consonants and vowels.*

PLACE OF ARTICULATION		MANNER OF ARTICULATION							
		Plosive		fricative		affricate		liquid	nasal
		- voice d	+voiced	-voiced	+voiced	-voiced	+voiced		
<i>Labial</i>			B		w				m
<i>labiodental</i>				f					
<i>Dental</i>	<i>plain</i>	t	D	s	z			l	
	<i>Emphatic</i>	t <sup>ʕ</sup>	d <sup>ʕ</sup>	s <sup>ʕ</sup>	z <sup>ʕ</sup>				
<i>Inter-dental</i>	<i>plain</i>								
	<i>emphatic</i>								
<i>alveolar</i>				ʃ	ʒ	tʃ	dʒ	r	n
<i>Palatal</i>					j				
<i>Velar</i>		k	G	x	ɣ				
<i>Uvular</i>		q							
<i>pharyngeal</i>				ħ	ʕ				
<i>Glottal</i>				h					

As mentioned earlier, the interdental phonemes /θ/, /ð/, and /ð<sup>ʕ</sup>/ have changed to /t/, /d/ and /d<sup>ʕ</sup>/. The word [θawra] “revolution” becomes [tawra], the word [laðið] “tasty” becomes [ldid], and the word [ð<sup>ʕ</sup>alam] “darkness” becomes [d<sup>ʕ</sup>lam]. As pointed out earlier, this is not the case for Tunisian Arabic whose consonant inventory includes the interdentals /θ/, /ð/, and /ð<sup>ʕ</sup>/.

For an English learner from a Moroccan or Algerian background, one would expect some pronunciation difficulties with the English interdentals namely /θ/ and /ð/. The word [θri] “three” is usually pronounced [tri], and the word [ðæt] “that” is pronounced [dæt].

The other American English consonants that Arabic in general and North African dialects do not have (with a great degree of variation) are: /p/, /v/, /ŋ/, /ɾ/, and /ɹ/.

Monolingual Arabic speakers who have not learned and been exposed to French usually have difficulties with [p] and [v] and might pronounce words like [vɪsɪt] “visit” as [fisit] and words like [pɛpə] as [baybr]. English words ending with the sound [ŋ] would be pronounced with a plain [n]. Speakers would substitute [t] for the voiced alveolar flap /ɾ/ and the voiced alveolar trill /r/ for the voiced alveolar approximant /ɹ/ saying words like [wɑːɾɪ] “water” as [watɾ].

There is some uncertainty and disagreement when it comes to the right vowel inventory of each of these North African dialects. Everyone agrees that there are at least three short and long vowels: /a/-/a:/, /i/-/i:/, and /u/-/u:/ (Caubet 2008, Gibson 2008, Boucherit 2008). The disagreement is in what additional vowels these dialects exhibit. No matter how many vowels these dialects have, they do not come anywhere close to the large American English vowels inventory of twelve vowels (excluding diphthongs). Arabic speakers generally encounter difficulties with the American English vowels.

***Syllable structure.*** The syllable structure in the North African dialects (specifically MA, AA, and TA) is characterized by allowing a consonant cluster in both the onset and the coda. Besides open syllables: CV as in *a:na* ‘I’ and CCV as in *mfa* ‘he left’, we also find closed syllables CVC as in *səb* ‘insulted/cursed’, CCVC as in *ktəb* “wrote”, and CVCC as in *fərh* ‘explanation’. A closed syllable with a CCC cluster is also found but with the affixation of the second part of the discontinuous negation *ma-f* ‘neg-neg’ as in *ma-fəft*.

Difficulties that Arabic speakers will encounter when learning English syllable

structure will be mainly with consonant clusters like *rl* as in “world” and “girl” and *spr* as “spring”.

**Morphology.** Compared to English these Arabic dialects have rich morphology. The verb inflects for person, number and gender and it is the position of these agreement affixes that marks the two aspectual forms: perfective and imperfective. Nouns do not inflect for case but are marked for definiteness, number and gender.

*Verb tense and agreement.* The verb in these dialects, akin to MSA and the other Arabic dialects, has two aspectual forms, the so-called perfective which denotes past tense and imperfective which denotes present tense. The perfective form is marked by suffixation of agreement morphology e.g. *mfa-t* ‘she left’ and *mfi-na* ‘we left’, and the imperfective is marked by prefixation or circumfixation of agreement morphology e.g. *t-mfi* ‘she leaves’ and *t-mfi-w* ‘you(Plural) leave’. The verb in the imperfective form is preceded by the morpheme *ka* or *ta* to denote either habitual or continuous present tense e.g. *ka-t-xdām* ‘she works/ is working’. The past progressive is formed by combining the copula *kan* ‘be’ in the perfective form with the main verb in the imperfective form:

- (1) *kan-t*            *ka-t-xdām* “she  
be.PERF-3sf    Ka-3sf-wrok.IMP  
“she was working/ used to work”

*Verb passives, imperatives, and causatives.* Passives, imperatives, and causatives are marked morphologically by an alternation in the verb form. The passive is formed by adding the prefix *t-* to the perfective and the imperfective verb stem, compare for example: *drāb* ‘he hit’ with *t-drāb* ‘he was hit’, and *ka-y-drāb* “he hits/is hitting” with *ka-y-t-drāb* “he is being hit/gets hit”. There are three imperative verb forms, the first for second person masculine, the second for the second person feminine, and the third for

second person plural:

- (2) a. *ʃrəb* “drink! (you singular masculine)”
- b. *ʃərbi* “drink! (you singular feminine)”
- c. *ʃərbu* “drink! (you plural)”

Geminating the second consonant of the tri-consonantal root is the strategy used to form causatives:

- (3) *ʃrəb-t*                      →        *ʃərrəb-t-u*  
    drank.PERF-1s                made.drunk.PERF-1s-him  
    “I drank”                      “I made him drink”

*Noun morphology.* Unlike MSA the noun is not morphologically marked for case but it gets marked for definiteness, gender, and number. Indefinite nouns are not morphologically marked at least overtly e.g. *mudir* “director”. Adding the definite article *al-* renders the noun definite *al-mudir*. These nouns also inflect for feminine by adding the feminine marker *-a* as in *mudir-a* ‘directress’.

Plural nouns can be divided into regular plurals and broken plurals, the same system found in MSA. For regular plurals, there is a difference between MSA and the North African dialects in the way masculine regular plurals are formed. In MSA the affix *-u:n* is used for nominative plurals e.g. *mudi:r-u:n* ‘directors’, and the affix *-i:n* is used for accusative and genitive plurals e.g. *mudi:r-i:n*. Since case is not marked morphologically in these dialects, only one of these affixes was retained to mark masculine plural nouns and this affix is *-i:n* as in *mudi:ri:n*. To form feminine plural, the feminine plural marker *-at* is added similar to MSA *mudi:r-at* “directresses”.

Broken plural nouns are formed by altering the internal vowels of the singular form e.g. *kursi* ‘chair’ becomes *krasa* ‘chairs’

## *Syntax..*

*Word Order: declarative and interrogative clauses.* MA, AA, and TA have two possible word orders; SVO and VSO with SVO being the unmarked order:

- (4) Fatima *fərb-at*                      *lma*  
Fatima drink.PERF-1s    water  
'Fatima drank water'
- (5) *fərb-at*                      Fatima                      *lma*  
drank.PERF-1s    Fatima                      water  
'Fatima drank water'

VSO is the dominant order in embedded clauses.

Forming Yes-No interrogative clauses involves the use of the Q(uestion) marker *wash* or simply a verb initial clause with the right intonation:

- (6) *wash*                      *fərb-at*                      Fatima                      *lma* ?  
Q                      drink.PERF-1s                      Fatima                      water  
'Did Fatima drank water?'
- (7) *fərb-at*                      Fatima                      *lma* ?  
drink.PERF-1s    Fatima                      water  
'Did Fatima drank water?'

As for regular interrogative clauses, question words/interrogatives are used and must occur at the beginning of the sentence:

- (8) *fnu / fin*                      *fərb-at*                      Fatima ?  
what /where                      drink.PERF-1s                      Fatima ?  
'what/where did Fatima drink?'

Theses dialects allow for the subject to be dropped (so-called pro-drop phenomenon):

- (9) *fərb-at*                                      *lma* ?  
drink.PERF-1s                                      water  
'She drank water?'

Direct objects and indirect objects cannot be dropped. When pronouns are used as direct



and indirect objects, these pronouns are clitics in nature and must be attached to the verb.

- (10) *frat-ha-li-h*  
bought.PERF-it.fem-to-her  
'I bought it for her'

*Negation.* Negation in MA, AA, and TA is expressed by using the discontinuous negation markers *ma-f*. *ma-* always precedes the verb and *-f* follows it:

- (11) *ma-farb-at-f*  
ne-drink.PERF-1s-neg  
'She didn't drink'

Unlike MSA, negation in these dialects does not carry tense. The same negation markers can also be used to negate other predicates like predicate nominal, adjectives, and preposition phrases.

***Implications for clinical practice.*** Early Arabic learners of English may exhibit the following articulation and morphosyntactic differences due to transfer effects from Arabic to English. SLPs are encouraged to be cognizant of these differences in order to differentiate between a language disorder versus language difference.

- Phonology
  - Possible substitutions of the English interdentalals (i.e. t/θ; d/ð) by speakers of Moroccan Arabic (MA) and Algerian Arabic (AA), but not Tunisian Arabic (TA).
  - Possible substitutions of the following English phonemes that are absent in North African dialects: f/v, b/p, n/ŋ, t/r, and r/ɹ.

- Possible difficulty producing English vowels due to the relatively restricted Arabic vowel inventory of MA, AA and TA in comparison to English vowels.
- Expected difficulties in producing consonant clusters like *rl* as in “world”, “girl” and *spr* as “spring”..
- Morphosyntactic
  - The North African dialects, imperfective forms denotes present tense and is marked by the prefix *ka* or *ta* to denote either habitual or continuous present tense. Hence, a potential difference that may be observed is the over use of present progressive tense (such as producing she is working for she works in English).
  - North African dialects use a morphological marker of passive. Possible deletions of the *by* phrase in producing English possessive structures might be observed.
  - There are several possible word orders in MA, AA, and TA; SVO, VSO, and SOV. Potential word order errors in English productions may be predicted as a result of Arabic word structure interference in the early stages of English learning, particularly inappropriate/over use of VSO order in English productions.
  - Subject dropping is possible in MA, AA, and TA and might be observed in English productions of native speakers from North Africa.
  - Several inflectional free morphemes in English are bound morphemes in GA. As a result some early learners of English may delete free

morphemes. For example when asked the question “Whose bear is this?” an early learner of English may answer “the boy” instead of “his”.

- The possessive marker is absent in MA, AA, and TA and deletion of possessive markers might be observed in early English learners from North Africa.

**Levantine Arabic.** Levantine Arabic refers to a family of Arabic varieties spoken in the Levant area consisting of the countries of Israel/Palestine, Jordan, Lebanon and Syria. Many dialects spoken in this area share a number of features that distinguish them from the Egyptian, Maghrebi (North-African), and Gulf dialects of Arabic. There are significant differences between the Arabic varieties spoken in the Levant/Near East with some of them sharing features with varieties in neighboring countries such as Iraq and Saudi Arabia. There are also differences between the so-called Urban, Rural, and Bedouin varieties, particularly in their phonemic inventories, sound patterns, and inflectional paradigms, in addition to syntactic and lexical differences. The following is a brief overview of the main phonetic, phonological, morphological, and syntactic aspects of Levantine Arabic. For each section, the distinctive properties of the Levantine varieties will be highlighted together with the features that differentiate them from English. The sketch, including the examples, is based on a number of sources listed at the end.

### ***Phonetics and Phonology.***

*Phonemic Inventory.* Like all modern spoken Arabic varieties in the geographical area that stretches from Morocco to Oman, Levantine Arabic shares a great deal of sounds with Modern Standard Arabic, the formal variety used throughout the Arabic as official language though it is learnt mostly through formal education.

		Bilabial	Interdental	Alveolar		Palatal/Alveo -Palat	Velar	Uvular	Pharyn- geal	Glotta l
				Plain	Emphatic					
Plosive	voiceless	(p)		T	t <sub>1</sub>		k	[q]		ʔ
	voiced	b		D	d <sub>1</sub>		[g]			
Fricative	voiceless	f	[θ]	S	s <sub>1</sub>	f/ʃ	x		ħ	h
	voiced	(v)	[ð]	Z		z/ðʒ	ɣ		ʕ	
Nasal		m		N						
Lateral				L						
Trill				r						
Approx.		w				j				

Levantine varieties display the pharyngeal and guttural consonants typical of all the Arabic varieties. It has the voiced and voiceless velar fricatives /ɣ/ and /x/ which are not found in English as part of its phonemic inventory.

- (1) a. xamse (five)  
b. yaali (expensive)

Like other Arabic dialects, and unlike English, they do not have the voiceless bilabial stop /p/ and the voiced labiodental fricative /v/ as part of their phonemic inventory. However, those sounds do arise in phonological contexts that trigger voicing or devoicing. In addition, unlike Modern Standard Arabic and a few modern spoken dialects, some Levantine varieties lack the interdental fricatives /ð/ and /θ/ but others do have them, though in contexts that do not necessarily overlap their Modern Standard Arabic counterparts. In Levantine varieties, in Syrian for example, the /ð/ and /θ/ that we find in Modern Standard Arabic have either /t/ and /d/ or /s/ and /z/ as counterparts, though some of them have preserved these sounds. The variation depends on the region and may also have sociolinguistic dimensions that have to do with class, education, and possibly gender. Another feature of Levantine Arabic is the diversity of how the Modern Standard Arabic voiceless uvula stop phoneme /q/ is realized. It can be realized as the

glottal /ʔ/ stop (like in Egypt and parts of Morocco) or the voiced velar stop /g/ and /k/. Compared to /ʔ/ and /g/, /k/ does not seem to be as widespread. Some varieties also display the alveopalatal affricates /tʃ/ and /dʒ/ as counterparts of the palatal fricatives /f/ and /ʒ/ and yet others also display a pattern that is predominate mostly in the Gulf region, namely the realization of the Modern Standard Arabic /k/ as /f/ or /tʃ/.

Levantine varieties also have the so-called pharyngealized or emphatic consonants as part of their phonemic inventory. Emphasis is contrastive.

- (2) a. tiin (figs)  
b. ṭiin (mud)

Gemination is distinctive in Levantine varieties, as it is in other Arabic varieties.

- (3) a. mara (woman)  
b. marra (a time/one time)

Like many other Arabic dialects, Levantine varieties have three short vowels /i/, u/ and /a/ and three long vowels /i:/ and /u:/ and /a:/. Thus, vowel length is distinctive.

- (4) a. katab (wrote)  
b. kaatab (correspond)

Vowels in the Levantine varieties, on a par with their counterparts in other Arabic varieties, get lowered or backed in the context of pharyngeal and uvular consonants. In some contexts and dialects, the entire stem may get pharyngealized.

- (5) a. ḥasadna (he envied us)  
b. ḥaṣadna (we reaped)

Full vowels such as the high vowel /i/ may get reduced in some contexts and varieties.

For example, in some dialects the word for forget is realized as *nəsi* and is realized as *nisi*

in others. Levantine varieties are also well known for the so-called Imala whereby a low vowel /a/ is raised and realized as /e/.

- (6) a.     ʔakal (he ate)  
      b.     ʔakel (he ate)

*Syllable Structure and Syllabification.* Like many other Arabic dialects, The

Levantine varieties have the following syllables

CV	( <b>k</b> atab, he wrote)
CVV	( <b>ka</b> atab, he corresponded)
CVC	(katab <b>, </b> he wrote)
CVCC	(katab <b>t</b> , I wrote)
CVVC	(suuʔ, market)

The syllables CVCC and CVVC, so-called superheavy syllables, are usually found at the end of words.

Unlike Maghrebi dialects, particularly Moroccan Arabic, Levantine varieties usually do not have consonant clusters in the word initial positions but there are cases where such clusters do arise.

- (7) a.     ʒdaad            (new.pl)  
      b.     ʃtrayt         (I bought)

To avoid clusters that may arise in the context of affixation and cliticization, a vowel may get inserted.

- (8) a.     ktaab (book)  
      b.     l-əktaab (the book)

All words must carry stress in Levantine varieties. Stress assignment is sensitive to syllable weight and the number of syllables within the word from the right edge of the

word. A heavy syllable from the right edge is stressed (ignoring the last consonant of the last syllable).

- (9) a. ba'rrad (he cooled)
- b. kaatab (he corresponded)
- c. ʔaka'lt (I ate)
- d. ma'drase (school)

If the word contains only light syllables (two or three), the initial syllable is stressed.

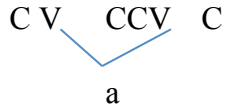
- (10) ʔa'kalit (she ate)

Levantine varieties are also well known for deleting high vowels in unstressed syllables. For example, the stressed initial high vowel in *fi'him* gets elided in some varieties when it is augmented with an affix that shifts the stress *fi'mna*. The vowel elision and insertion rules are quite complex and dialects do display variation in how they apply them but stress and the affix and clitic types are relevant factors.

**Morphology.** The morphological and word formation patterns in the Levantine varieties of Arabic display the typical system we find in other Arabic varieties including Modern Standard Arabic. It has both concatenative and non-concatenative forms of derivations. The former uses affixation process that append prefixes or suffixes to a stem while the latter consist of processes that map a consonantal root onto a template with a specific vocalic melody. For example, the causative form of the verb *katab* is *kattab* which seems to involve a derivation as in (11) where the second consonant of the root *t* is geminated.

(11)

k      t      b  
|      |      |



On the other hand, the derivation of *katab-u* (they wrote) involves the attachment/suffixation of the suffix *u* to the verb stem *katab*.

Levantine Arabic nouns and adjectives inflect for gender and number. The masculine singular is the unmarked form and the feminine involves the affixation of a low /a/ or mid vowel /e/ followed by a /t/ that gets dropped in pausal contexts.

- (12) a. faaḍi (empty/free)  
 b. faadye (empty.fem/free.fem)

Numbers on adjectives can be realized concatenatively (by affixation) or non-concatenatively, through root-to-template mapping.

- (13) a. nḍiif (clean)  
 b. nḍaaf (clean.pl)  
 c. faḍyeen (empty.pl/free.pl)

Likewise, nouns are marked for number and gender. Unlike adjectives, they can be marked for dual number as well. The dual is marked by the suffix –en which attaches to the singular noun.

- (14) a. kaff (glove)  
 b. kaffen (two gloves)  
 c. kfuuf (glove.pl)

Plural formation is more complex. A noun depending on its morphological make-up may be derived by regular suffixation or by the modification of the vowels (somewhat similar to the English vowel ablaut pattern in *foot* <-> *feet*). This type of internal derivation is



called the broken plural pattern as opposed to the sound plural pattern that involves suffixation. It is widespread among Arabic varieties and is one of the most distinguishing features of Arabic as a Semitic language. It is also quite complex and includes a large number of patterns and templates that vary in their vocalic melodies and prosodic properties. The suffixation pattern involves the suffix *iin* for masculine nouns and the suffix *aat* for feminine nouns. *Iin* is restricted to human nouns while *aat* applies more generally including non-human nouns that are masculine in the singular.

- (15) a. mʃallem (teacher.m)  
 b. mʃallm-iin (teachers.m)
- (16) a. mnabbeh (alarm clock)  
 b. mnabbhaat (alarm clocks.fp)
- (17) a. kiis (bag)  
 b. kyaas (bags)

Nouns inflect for definiteness in Levantine Arabic. The definite article is (ʔ)il or l depending on whether the word is following another word. It assimilates to the first consonant of the noun if it starts with an alveolar or palatal consonant

- (18) a. ʔustaaz (professor)  
 b. ʔil- ʔustaaz (the professor)
- (19) a. dørs (lesson)  
 b. d-dørs (the lesson)

Levantine Arabic verbs occur in two main forms, the perfective and the imperfective. The perfective consists of the verb stem and suffixes that display agreement in with the subject in person, number and gender. The imperfective has both prefixes and suffixes that display agreement with the subject also in person, number, and gender. The tables

below illustrate the two paradigms. Dialects vary with respect to the vowels of the perfective verbs (as full vowels or reduced to schwas) and the vowel of the imperfective prefix. Verbs also vary according to their vocalic melodies (for example, some have the melody *a—a* and some have the melody *i—i*). There is also extensive variation in the size of the paradigms with some varieties distinguishing between plural feminine and plural masculine forms.

katab-write	Singular	Plural
1 person	katab-t	katab-na
2 person masculine	katab-t	katab-tu
2 person feminine	katab-ti	katab-tu
3 person masculine	Katab	katab-u
3 person feminine	katab-et	katab-u

katab-write	Singular	Plural
1 person	ʔə-ktob	nə-ktob
2 person masculine	tə-ktob	tə-kətb-u
2 person feminine	tə-kətb-i	tə-kətb-u
3 person masculine	yə-ktob	yə-kətb-u
3 person feminine	tə-ktob	yə-kətb-u

In Levantine varieties, and unlike English, the verb inflects even in non-finite contexts. For example, in an embedded clause that is non-finite or after a modal, the verb will still show agreement. There are no bare forms of the verb in Arabic that occur in any syntactic context. In imperatives, the prefix of the imperfective verb is dropped but the suffix still surfaces.

- (20)      mumkin      y-saafir  
             possible      3m-travel  
             ‘He might travel’

The Levantine varieties attach the proclitics *bə*, *ʃam*, *a rah* and their variants in different

dialects to the imperfective verb to indicate present (habitual and progressive) and future tenses.

- (21) a. ba-šrab (I drink)  
b. šam ʔa/rab (I am drinking)  
c. raḥ ʔa/rab (I will drink)

To derive complex forms of the verb such as the passive, inchoative or causative, Levantine varieties, use prefixes, such as **t** and **n** for the passive and inchoative but stem modification for the causative and reciprocal which involve the germination/doubling of the second consonant of the root or the lengthening of the first vowel of the stem (libis <-> labbas; wear/make wear or dress; katab <-> kaatab; write/correspond) katabunderstand/make understand).

### *Syntax*

*Sentential Syntax.* Like other Arabic dialects, Levantine varieties display both the VSO order and the SVO order, with all the other six logical possibilities available under the appropriate pragmatic and syntactic conditions. If the object is preposed, an object clitic must be attached to the verb. It is debatable whether the VSO order is basic or whether the SVO order has become more dominant. The subject can be dropped and its content retrieved from the agreement morphology on the verb.

- (22) a. gaabal ʔeḥmad muna VSO  
met.3ms Ahmed Mona  
'Ahmed met Mona'  
b. gaabal muna ʔeḥmad VOS  
met.3ms Mona Ahmed  
c. ʔeḥmad gaabal muna SVO  
Ahmed met.3ms Mona

There are independent subject pronouns but in the context of verbs, their function is

usually to focus the subject. Object pronouns are clitics on the verb. The following tables contain the paradigms of the subject pronouns and object clitics. As mentioned above there is extensive variation in the number of cell in the paradigms and the phonological realization of the pronouns and clitics.

#### Independent Pronouns

	Singular	Plural
1 person	ʔana	nəħna
2 person masculine	ʔəntə	ʔəntu
2 person feminine	ʔənti	ʔəntu
3 person masculine	huwwe	hənnə
3 person feminine	hiyya	hənnə

#### Object Clitics

	Singular	Plural
1 person	-ni	-na
2 person masculine	-ak	-kon
2 person feminine	-ek	-kon
3 person masculine	-o	-hum
3 person feminine	-ha	-hon

Unlike English, Levantine Arabic varieties do not allow double objects (as in English sentence "He gave Mary the book) but only a direct object and an indirect object headed by a dative preposition.

The typical interrogative pattern in Levantine Arabic, in contrast with Egyptian Arabic, involves fronting the question phrase, through the in-situ option (leaving the question phrase in its base position is also possible in some varieties).

- (23) a. *ʃuu gaal ʔəħmad*  
 what said.3ms Ahmed  
 'What did Ahmed say'
- b. *ʔinta            ʃuf-t                            miin ʔimbaarih*

you.MSG saw-2M who yesterday  
 ‘Who did you see yesterday?’

Relative clauses require the presence of the relative pronoun *ʔilli* and if the relativized nominal is an object, an object clitic (resumptive pronoun) is required.

(24) **l-bint** ʔilli *fuf-ti-ha*  
 the-girl that saw-2F-her  
 ‘The girl that you saw’

However, unlike English if the relativized noun is indefinite, no relative pronoun is used.

(25) ʔəndi saʔiiʔ ždiid ʔa-l-balad  
 at.me friend new to-the-country  
 ‘I have a friend who is new to the country’

Another property that distinguishes Levantine Arabic from English is the lack of a particle such as “to” to demarcate embedded non-finite clauses.

(26) bəddi ʔasaafir  
 want.1s travel  
 ‘I want to travel’

There is a great deal of variation in negative constructions in Levantine Arabic. Most dialects realize sentential negation either by the proclitic *maa* or the proclitic *maa* combined with the enclitic *ʃ* as in Moroccan, Egyptian and some Yemeni dialects. Other Levantine varieties may drop *maa* in some contexts and use *ʃ* only.

(27) l-walad ma-ʔara-(*f*) l-kteeb  
 the-boy neg-read.past.3ms-(neg) the-book  
 ‘The boy didn’t read the book.’

If the predicate is not a verb, the two negatives (the proclitic *maa* and the enclitic *f*) combine to form a single and morphologically independent negative.

- (28)      huwwe      miʃ      hon  
             he              neg      here  
             ‘He is not here.’

Levantine varieties of Arabic, like other Arabic dialects, do not usually have a copula verb in present tense sentences. In these contexts, only the subject and the predicate (which does not have to be a verb) may occur.

- (28) a.      huwwe b-l-beet  
             he in-the-house  
             ‘He is in the house.’  
       b.      ʔel-walad miʒtahid  
             the-boy    hardworking  
             ‘The boy is hardworking’

*Phrasal syntax: noun phrase.* The demonstratives typically precede the noun and when they are not phonologically reduced agree with it in gender and number.

- (29)      hadiik əl-mara  
             that    the-woman  
             ‘That woman’

Attributive adjectives follow the nouns they modify and agree with them in definiteness as well.

- (30) a.      ʔil-maʕṣam    ʔil-maʕhuur  
             the-restaurant the-famous  
             ‘The famous restaurant’  
       b.      maʕṣam          maʕhuur  
             restaurant      famous  
             ‘A famous restaurant’

There is also no verbal equivalent to the possessive verb “have” in English. Levantine

varieties express possession by using the particle *ʕand* (at).

- (31)        ʕand-iiktaab  
              with-me        book  
              ‘I have a book’

In this construction, and unlike in English, the possessee is the subject and the possessor is the complement of the possessive preposition.

On a par with other Arabic dialects, Levantine varieties have two main constructions to express genitive relations. The first is an annexation construction where the possessor and the possessee are adjacent and seem to form a single prosodic unit (so-called Construct State). The second construction uses a possessive particle that separates the possessor and the possessee.

- (32)        a.        ʕruuʕ            ha-ʕ-ʕaʒara  
              roots            that-the-tree  
              ‘The roots of that tree’

- (33)        b.        ʕ-ʕruuʕ        bataʕ    ha-ʕ-ʕaʒara  
              the-roots        of        that-the-tree  
              ‘The roots of that tree’

***Implications for clinical practice.*** Early Levantine Arabic learners of English may exhibit the following articulation and morphosyntactic differences due to transfer effects from Arabic to English. SLPs are encouraged to be cognizant of these differences in order to differentiate between a language disorder versus language difference.

- **Phonology**

- Since Levantine Arabic (LA) dialects do not have the voiceless bilabial stop /p/ and the voiced labiodental fricative /v/ as part of their phonemic

inventory, substitutions of b/p and b,f/v may be apparent in English productions of LA speakers

- Possible substitutions of the English interdentalals (e.g. t/θ; d/ð) by some speakers of Levantine Arabic (LA) lacking the interdental fricatives.
- Since some LA varieties display the alveopalatal affricates /tʃ/ and /dʒ/ as counterparts of the palatal fricatives /tʃ/ and /dʒ/, Deaffrication may appear to persist in the English productions of LA speakers (i.e. /fɪz/ for cheese and /ʒʌʒ/ for judge). Similarly, since Levantine varieties usually do not have consonant clusters in the word initial positions, cluster reduction may be observed in word initial positions (such as dove/drove, bow/blow, or bother/brother)
- Since germination is a distinctive feature of LA, it may be falsely recognized as instances of cluster reduction (/Kodd/ for cold, compared to /Kod/ for cold). Since, vowel insertion is frequent in Arabic in the context of affixation and cliticization in Arabic, epenthesis may be apparent in English productions as well.
- Possible difficulty producing English vowels due to the relatively restricted Arabic vowel inventory.
- Since vowel length is a distinctive feature in LA, similar to its counterparts in other Arabic varieties, possible duration differences in the pronunciation of English vowels might be observed.
- Since heavy syllables from the right edge are usually stressed in LA, ignoring the last consonant of the last syllable, Levantine Arabic learners



of English, like other Arabic dialects learners, may mispronounce words with stress in initial syllables and lengthen the vowels instead of adding the stress. For instance, they might pronounce CONsequences instead of ConsequenCES ( the capitalized syllable being stressed).

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### **Morphosyntactic**

- Since Levantine Arabic, like other dialects, includes concatenative and non-concatenative forms of derivations, Levantine Arabic native speakers might produce inappropriate concatenative English productions.
- Since in Levantine varieties, the prefix / bə/ attach to the imperfective verb to indicate present (habitual and progressive), Levantine Arabic speakers may drop English free morphemes signifying present progressive (e.g., boys eating/ boys are eating).
- To derive passive, inchoative, and causative structures, Levantine varieties use prefixes, such as **t** and **n** for the passive and inchoative but stem modification for the causative and reciprocal which involve the germination/doubling of the second consonant of the root or the lengthening of the first vowel of the stem. Hence, Levantine Arabic speakers learning English may delete the by phrase in their English passive productions.

- Like other Arabic varieties, Levantine Arabic displays both the VSO order and the SVO order, with all the other six logical possibilities available under the appropriate pragmatic and syntactic conditions. Hence, potential word order errors in English productions may be predicted as a result of differences in the variability of the possible Arabic word orders in comparison to English.
- Object pronouns in Levantine Arabic, like other dialects, are clitics on the verb. Hence, speakers of Levantine Arabic learning English may have difficulty perceiving and producing object pronouns in English (such as the tendency to substitute we for us in producing “these toys belong to we” instead of us).
- Unlike English, Levantine Arabic varieties do not allow double objects (as in English sentence” He gave Mary the book) but only a direct object and an indirect object headed by a dative preposition. Hence, addition of prepositions might be observed in producing and recalling double objects (such as, Hussein gave the book to Mary/Hussain gave to Mary the book when asked to recall the sentence Hussain gave Mary the book)
- Deletion of the relative pronoun in indefinite relative structures may be observed since unlike English if the relativized noun is indefinite, no relative pronoun is used (e.g., LA speaker might delete the relative pronoun who when asked to recall the sentence, “The boy bought a book for a friend who likes short stories” and recall it as “The boy bought a book for a friend because he likes short stories”).

- Possible difficulty producing English particles that are absent in Arabic, such as “ I want travel” instead of “ I want to travel”.
- Unlike English, Levantine Arabic adjectives follow the noun they modify and agree with them in definiteness as well. A child may use the LA pattern in English (e.g.. “dog big” for “big dog). Similarly, in construct structures, and unlike in English, the possessee is the subject and the possessor is the complement of the possessive preposition. Hence, Levantine speakers learning English may use the LA pattern in English (e.g.. roots tree instead of tree roots).
- Possible productions of interrogative with a question phrase in its original position may be observed due to interference of LA structure (such as producing “you are eating what” instead of “ what are you eating?”).
- Native LA speakers learning Arabic, like other Arabic dialects, may tend to delete the possessive marker (e.g.. cat food instead of cat’s food)

**Egyptian Arabic.** Egyptian Colloquial Arabic is spoken in Egypt and shares many properties with the Arabic dialects in the neighboring countries of Libya and Sudan. There are also dialectal differences within Egypt. The dialect that has been extensively described and discussed is Cairene dialect spoken in the city of Cairo. Other dialects that have received some attention are the dialect of Alexandria and the dialect of Upper Egypt. The following is an overview of the main phonetic, phonological, morphological, and syntactic aspects of Egyptian Arabic. For each section, the distinctive

properties of the Egyptian dialect will be highlighted together with the features that differentiate Egyptian Arabic from English.

***Phonetics and phonology.***

*Phonemic inventory.* The phonemic inventory of Egyptian Arabic overlaps with that of its counterpart in other Arabic varieties, including Modern Standard Arabic. It has the pharyngeal and guttural consonants typical of all the Arabic varieties spoken in the Arabic speaking world. It has the voiced and voiceless velar fricatives /ɣ/ and /x/ which are not found in English as part of its phonemic inventory. Like other Arabic dialects and unlike English it lacks the voiceless bilabial stop /p/ and the voiced labiodental fricative /v/. Unlike Modern Standard Arabic and a few modern spoken dialects, it lacks the interdental fricatives /ð/ and /θ/. While in many dialects, these Standard (and English) consonants have been replaced by /t/ and /d/ respectively, in Egyptian Arabic, they have been replaced by /s/ and /z/. Another feature of Egyptian Arabic, is the absence of the voiceless uvular stop /q/ and its replacement with the glottal stop. However, in some contexts, such as recitations from Quran, Egyptian speakers use /q/. Unlike some Arabic dialects, particularly the Gulf dialects, Egyptian Arabic lacks affricates. Egyptian also lacks the voiced fricative /ʒ/ and uses /g/ instead.

## Egyptian Consonants

		<u>Bilabial</u>	<u>Inter-dental</u>	<u>Alveolar</u>		<u>Palatal</u>	<u>Velar</u>	<u>Uvular</u>	<u>Pharyngeal</u>	<u>Glottal</u>
				<u>plain</u>	<u>emphatic</u>					
<u>Plosive</u>	<u>voiceless</u>			t	t̤		k	(q)		ʔ
	<u>voiced</u>	b		d	d̤		g			
<u>Fricative</u>	<u>voiceless</u>	f		s	s̤	ʃ	x		ħ	h
	<u>voiced</u>			z	z̤		ʁ		ʕ	
<u>Nasal</u>		m		n						
<u>Lateral</u>				l						
<u>Trill</u>				r						
<u>Approximant</u>		w				j				

Like many other Arabic dialects, Egyptian has three short vowels /i/, u/ and /a/ and three long vowels /i:/ and /u:/ and /a:/. Thus, vowel length is distinctive. It is a matter of debate whether mid long vowels /e:/ and /o:/ are distinctive. Vowels in Egyptian Arabic, like their counterparts in other Arabic varieties, get lowered or backed in the context pharyngeal and uvular consonants.

***Syllable structure and syllabification.*** Like many other Arabic dialects, Egyptian Arabic has the three basic syllables CV, CVV and CVC. Thus, the word *kaatab* (writer) consists of two syllables, *kaa* (CVV) and *tab* (CVC). The word *katab* consists of two syllables *ka* (CV) and *tab* (CVC). On a par with other Arabic dialects, Egyptian Arabic displays the so-called superheavy syllables which usually have a complex nucleus plus coda (CVVC) or complex coda (CVCC) and are restricted to the final position of the word. This is, for example, the case in a word such as *katabt* (I wrote) whose second syllable is superheavy (CVCC) and in the word *fufnaak* (we saw you) whose second

syllable is also superheavy (CVVC).

However, Egyptian Arabic, like some other dialects, does not allow consonant clusters in the initial position or word medially. If this situation arises due to morphology or borrowings from English, Egyptian resorts to syllable repair strategies that include epenthesis of /u/ or /i/ depending on the context. Borrowings from English such as the words *sprite* or *princess* trigger vowel epenthesis to bear the cluster.

Long vowels are shortened in some contexts. For example, a long vowel that is part of a superheavy syllable is shortened if it finds itself in a medial position due to affixation or cliticization.

- |                |        |            |              |
|----------------|--------|------------|--------------|
| (1) ?iid       | (hand) | ?id-ha     | (her hand)   |
| (2) /?ult+lak/ |        | ?ult[i]lak | (I told you) |

The stress rules for Egyptian Arabic are relatively complex but roughly work as follows. Stress lands on a final superheavy syllable (CVVC/CVCC). If there is no final superheavy syllable, stress a penult heavy syllable (CVC/CVV). Barring those two contexts, stress falls on the penultimate or antepenultimate syllable depending on the nature of the neighboring syllables.

- |        |            |  |
|--------|------------|--|
| (3) a. | ka'tabt    | (stress on superheavy syllable)        |
| b.     | 'bintik    | (stress on penultimate heavy syllable) |
| c.     | mudar'risa | (stress on penultimate syllable)       |
| d.     | 'darasit   | (stress on Antepenultimate syllable)   |

**Morphology.** The nominal and verbal morphology displays the typical pattern we find in other Arabic varieties including Modern Standard Arabic. It has concatenative and non-concatenative derivations. The former deploys affixation while the latter relies more critically on modifying the consonantal root.

Egyptian Arabic nouns and adjectives inflect for gender and number. The gender

distinctions are feminine and masculine and the number distinctions are singular and plural with limited distribution for the dual. There is no morphological marker for the masculine. The feminine is marked by the suffix /at/ but the /t/ may drop in pausal contexts. The dual is marked by the suffix –en which attaches to the singular noun. Plural formation is more complex. A noun depending on its morphological make-up may be derived by regular suffixation or by the modification of the vowels (somewhat akin to the English pattern in *foot* <-> *feet*). The latter pattern is called the broken plural pattern as opposed to the sound plural pattern that involves suffixation. The dominant suffixation pattern involves the suffix i:n for masculine nouns and the suffix aat for feminine nouns. Some illustrative examples are given below:

(4) Sound Masculine	Sound Feminine	Broken
mudarris-iin (teachers)	mudarris-aat (teachers)	madaaris School
muhandis-iin Engineers	muhandis-aat Engineers	kilaab dogs

Nouns inflect for definiteness in Egyptian Arabic. The definite article is *ʔil* but it assimilates to the first consonant of the noun if it starts with an alveolar, palatal or velar consonant.

(5) fulus	ʔil-fulus	but	raagil	ʔir-ragil
money	the-money		man	the-man

Egyptian Arabic verbs occur in two main patterns, the perfective and the imperfective. The perfective consists of the verb stem and suffixes that carry information about the person, number and gender of the subject. The imperfective is more complex in that it has both prefixes and suffixes that carry agreement information with the subject.

The two paradigms are illustrated below:

katab-write	Singular	Plural
1 person	katab-t	katab-na
2 person masculine	Katab-t	Katab-tu
2 person feminine	Katab-ti	Katab-tu
3 person masculine	Katab	katab-u
3 person feminine	Katab-it	Katab-u

katab-write	Singular	Plural
1 person	ʔa-ktib	ni-ktib
2 person masculine	Ti-ktib	ti-ktib-u
2 person feminine	ti-ktib-i	ti-ktib-u
3 person masculine	yi-ktib	yi-ktib-u
3 person feminine	ti-ktib	yi-ktib-u

In Egyptian Arabic, and unlike English, the verb inflects even in non-finite contexts. For example, in an embedded clause that is non-finite, the verb will still show agreement. There are no bare forms of the verb in Arabic that occur in any syntactic context. In imperatives, the prefix may drop but the suffix still surfaces. Egyptian Arabic has two prefixes/clitics that occur in the present tense and future. The /bi/ prefixes to the verb and designates an event that is on-going (progressive) or habitual. The /ha/ prefix marks the future. The verb that these prefixes attach to is always from the imperfective paradigm.

To derive complex forms of the verb such as the passive, inchoative or causative, Egyptian Arabic, uses prefixes, such as **ʔit** and **ʔin** for the passive and inchoative but stem modification for the causative which involves the germination/doubling of the second consonant of the root (fihim <-> fahhim; understand/make understand).

In Egyptian Arabic, and in other Arabic dialects, there is a comparative form of the (trilateral) adjective but there is no special superlative form. To convey the



superlative meaning that is encoded by *most* or the suffix *est* in English, Egyptian Arabic uses the comparative.

***Syntax.***

*Sentential syntax.* Like other Arabic varieties, Egyptian Arabic displays both the VSO order and the SVO order, with all the other six logical possibilities available under the appropriate pragmatic and syntactic conditions. However, the SVO order seems to be increasingly dominant in Egyptian Arabic.

- (6) a.     ʔil-mudiir     saʔal     ʕaleeh  
           the-director     asked     about-him  
           ‘The director asked about him’
- b.     saʔal     ʔil-mudiir     ʕaleeh  
           asked     the-director     about-him  
           ‘The director asked about him’

Egyptian Arabic is a null subject language that does not need an overt independent pronominal subject. The agreement on the verb is sufficient.

- (7) katb-na  
       wrote-1p  
       ‘We wrote’

There are independent subject pronouns but in the context of verbs, their function is usually to focus the subject. Object pronouns in Egyptian are clitics on the verb. The following tables contain the paradigms of the subject pronouns and object clitics.

**Independent Pronouns**

	Singular	Plural
1 person	ʔana	ʔifna
2 person masculine	ʔinta	ʔintu
2 person feminine	ʔinti	ʔintu
3 person masculine	Huwwa	humma
3 person feminine	Hiyya	humma

## Object Clitics

	Singular	Plural
1 person	-ni	-na
2 person masculine	-ak/k	-ku/kum
2 person feminine	-ik/ki	-
3 person masculine	-u(h)	-hum
3 person feminine	-ha	humma

Unlike English, Egyptian Arabic generally does not allow double objects (as in the English sentence “He gave Mary the book.”) but only a direct object and an indirect object headed by a dative preposition.

The typical interrogative pattern in Egyptian Arabic allows the question phrase to remain in its original position. In this respect, it is different from both English and the majority of spoken Arabic dialects. This strategy is available to both arguments and adjuncts.

- (8) a.      huwwa ʔiʔtara ʔiih  
           He    bought what  
           ‘What did he buy’
- b.      huwwa kaan ʕaayiz yruufi fiin  
           he    was    want go    where  
           ‘He wanted to go where?’

Egyptian Arabic relatives require the presence of the relative pronoun *illi*.

- (9)      ʔir-raagil    ʔilli    maat  
           the-man    who    died’  
           ‘The man who die...’

However, unlike English if the relativized noun is indefinite, no relative pronoun is used.

- (10)      ʔaaf    wlaad            gaabu            kutub  
           saw    children        brought        books  
           ‘He was some children who brought some book’

Another property that distinguishes Egyptian Arabic from English is the lack of a particle

such as “to” to demarcate embedded non-finite clauses. Thus, in Egyptian Arabic, a finite verb can be immediately followed by a dependent verb.

- (11)            huwwakaan    ʕaayiz ysaafir  
                  he    was    want    travel  
                  ‘He wanted to travel’

Negation in Egyptian Arabic is somewhat complex and its distribution mirrors to some extent the distribution of negation in Maghrebi dialect and some Levantine dialects. In sentences with finite verbs, sentential negation is realized by a proclitic *maa* and an enclitic *ʕ*.

- (12)            ma-saʔal-ni-ʕ  
                  neg-asked-me-neg  
                  ‘He didn’t ask me’

If the predicate is a noun, adjective or a combination of a preposition and a noun, sentential negation is realized as *muʕ*. The same pattern occurs if the verb carries the future prefix.

- (13)            a.        huwwa muʕ    muhandis  
                  he    neg    engineer  
                  ‘He is not an engineer’  
  
                  b.        muʕ    ha-ygi  
                  neg    fut-come  
                  ‘He will not come’

On a par with other Arabic varieties, Egyptian Arabic does not usually have a copula verb in present tense sentences. In these contexts, only the subject and the predicate (which does not have to be a verb) may occur.

- (14)            a.        hiyya muhandisa  
                  she    engineer  
                  ‘She is an engineer’

- b. hiyya hina  
she here  
'She is here'
- c. hiyya gamiila  
she beautiful  
'She is beautiful'
- d. Hiyya fi-l-beet  
she in-the-house  
'She is in the house'

*Phrasal syntax: noun phrase.* Unlike other Arabic dialects and English, in Egyptian Arabic, the demonstrative pronouns follow the noun and agree with it in gender and number.

- (15) a. ?il-kitaab da  
The-book this  
'This book'
- b. ?il-bint dii  
the-girl this  
'This girl'
- c. ?il-muhandisiin dul  
the-engineers these  
'These engineers'

Unlike English, Egyptian Arabic adjectives follow the noun they modify and agree with it in number and gender.

- (16) ?il-bint ?il-gamiil-a  
girl the-beautiful-fem,  
'the beautiful girl'

There is also no verbal equivalent to the possessive verb "have" in English. Egyptian Arabic, like other Arabic dialects, expresses possession by using the particle *ʕand* (at).

- (17) ʕand-ii ktaab

at-me book  
'I have a book'

This particle behaves like a preposition and takes the possessor as its complement, which is radically different from English where the possessor is subject.

Numerals 1 and 2 are only used for emphasis and follow the noun (behaving like adjectives).

- (18) a. walad waafid  
boy one  
'One boy'
- b. waladeen ?itneen  
boys.dual two  
'Two boys'

Numerals from 3 to 10 precede the noun. However, they follow it if they are definite (the three books).

- (19) a. talaat kutub  
Three books  
'Three books'
- b. ?il-kutub t-talaata  
'The three books'

The noun takes the singular form. With numbers above ten, the noun is singular. Ordinals pattern with adjectives and follow the noun.

***Implications for clinical practice.*** Early Arabic learners of English may exhibit the following articulation and morphosyntactic differences due to transfer effects from Arabic to English. SLPs are encouraged to be cognizant of these differences in order to differentiate between a language disorder versus language difference.

- **Phonology**

- Egyptian dialects lack the voiceless bilabial stop /p/, the voiced labiodental fricative /v/, interdental fricatives /ð/ and /θ/, voiced alveopalatal fricative /ʒ/ and affricates /tʃ/ and /dʒ/. Hence, substitutions of the following English phonemes may be observed : f/v, b/p, g/ ʒ, t or s /θ; d or z/ð, t/tʃ, g or d/dʒ.
- Since vowel length is a distinctive feature in Egyptian Arabic, similar to its counterparts in other Arabic varieties, possible duration differences in the pronunciation of English vowels might be observed.
- Since consonant clusters are not allowed in the initial and medial positions in Egyptian Arabic, like some other dialects, epenthesis of /u/ or /i/ might be observed in producing English consonant clusters in initial and medial positions (as in producing worild instead of world and /giril/ instead of girl).
- Since stress generally lands on a final superheavy syllable (CVVC/CVCC), Egyptian Arabic learners of English, like other Arabic dialects learners, may mispronounce words with stress in initial syllables and lengthen the vowels instead of adding the stress. For instance, they might pronounce invenTORY instead of INVENTory (the capitalized syllable being stressed).

- **Morphosyntactic**

- Since in Egyptian Arabic verb inflects even in non-finite contexts, we might observe difficulties producing non-finite verb in embedded clause. For example, Arabic learners of English might produce “My friend forgot

to texting me,” instead of “My friend forgot to text me,” or saying “I failing the exam is something I don’t like” instead of “Failing the exam is something I don’t like.”

- Egyptian Arabic, like other Arabic dialects, has a comparative form of the (trilateral) adjective but there is no special superlative form. Hence, Arabic learners of English might have difficulty producing the superlative English form such as producing more faster instead of fastest to convey the superlative).
- Passive and inchoative structures are derived morphologically using prefixes, such as **ʔit** and **ʔin** and tendency to delete the by phrase in learners’ productions of English passive structures might be detected.
- The possessive marker is absent in EA and deletion of possessive marker might be observed in early English learners from North Africa.
- Like other Arabic varieties, Egyptian Arabic displays both the VSO order and the SVO order, with all the other six logical possibilities available under the appropriate pragmatic and syntactic conditions. However, the SVO order seems to be increasingly dominant in Egyptian Arabic. Hence, potential word order errors in English productions may be predicted as a result of differences in the variability of the possible Arabic word orders in comparison to English.
- Since Egyptian Arabic, like other Arabic dialects, is a null subject language that does not need an overt independent pronominal subject, subject dropping might be observed in English productions. For example

a child may tend to say “ swinging”, “ sliding” instead of “they are swinging” and “ they are jumping” when asked to describe a picture of children playing in a playground.

- Egyptian Arabic native speakers, like other dialects, may have difficulty perceiving and producing subject and object pronouns in English. For example a child may say “Cutting” instead of “He is cutting,” or substitute we for us (i.e. These toys belong to we).
- Unlike English, Egyptian Arabic generally does not allow double objects (as in the English sentence “He gave Mary the book.”) but only a direct object and an indirect object headed by a dative preposition. Hence, addition of prepositions might be observed in producing and recalling double objects (such as “He gave to Mary the book” for “He gave Mary the book).
- Possible productions of interrogative with a question phrase in its original position may be observed due to interference of EA structure (e.g. “ You are eating what?” instead of “ What are you eating?”).
- Deletion of the relative pronoun in indefinite relative structures may be observed. (e.g., an EA speaker might delete the relative pronoun who when asked to recall the sentence, “He saw some boys who chased him home,” and recall it as “ He saw some boys chased him home.”
- Native EA speakers learning English may have difficulty producing articles and copula. Hence a tendency to delete articles in embedded



clauses or copula in present tense sentences may be observed (such as producing “she dancer” instead of “she is a dancer”).

- Unlike English, Egyptian Arabic adjectives and numerals 1 and 2 follow the noun they modify. A child may use the EA pattern in English (e.g. “hat big” for “big hat” or “ boy one” instead of “one boy)
- Native EA speakers learning Arabic, like other Arabic dialects, may tend to delete the possessive marker (e.g. king hat instead of king’s hat).
- In EA, like other dialects, the noun takes the plural form with numbers below ten, but the singular form with numbers above ten. Hence, Arabic speakers learning English may tend to use the singular form of a noun preceded by numerals (e.g. thirty book instead of thirty books)

### **III. Diglossia, Literacy and Heritage Speakers of Arabic**

Romain (2000) proclaims that one of the markers of a speech-community exhibiting diglossia is a relative paucity of access to the high language variety, which is typically taught formally. Accordingly, Arab-American individuals, in comparison to Arabs in the Arab world, have limited access to learning the high language variety of Arabic (MSA) in American schools but may have more opportunities to acquire the low language variety naturally through exposure at home.

Recent findings also suggest that even though the Arabic language is available for Arab-American children; this availability becomes more limited with development, which affects their ultimate proficiency levels in Arabic. In fact, US Census (2000) findings reveal that English is the predominant language used for communication in

many Arab-American families. For example, in 2000, 31.3% of Arab-Americans reported speaking *only* English at home. On the other hand, 44.4% reported that they speak Arabic at home and speak English very well, while 24.4% reported speaking Arabic at home but not having much confidence in their spoken English (US. Census Bureau, 2000). Based on these data, Lebanese were least likely to have difficulty speaking English, whereas Iraqis were most likely to have difficulty speaking English (United States Census Bureau, 2000).

Due to this sociological situation, a distinction between heritage and non-heritage speakers of Arabic is made in the literature. Heritage speakers are usually extensively exposed to their low language variety (i.e. their Arabic colloquial) in early childhood, while this exposure lessens or even ceases gradually with development. Language acquisition of heritage speakers is unlike the language development in typical monolingual and bilingual situations (Albirini, Benmamoun, & Saadah, 2011). This is due to the fact that in typical bilingual situations, a child may be exposed to two languages from early in life (simultaneous bilingualism), or one language early in life with a second language introduced in the later stages of language acquisition (sequential bilingualism). In heritage learning situations however, the child's exposure to the first language is ceased and/or decreased as the second language becomes more dominant. Moreover, heritage learners are mainly exposed to the low language variety of Arabic, in comparison to monolingual acquisition of Arabic, in which the two language varieties are available for the child in different contexts. Hence, it is observed that many Arab-Americans tend to study MSA later at the university level (Rouchdy, 2002) as an attempt to preserve their ethnic identity and religious affiliation.

Only one study is reported in the literature on linguistic performances of Arabic heritage speakers. Albirini et al. (2011) investigated morphosyntactic features in Arabic narrative productions by 10 Egyptian and 10 Palestinian heritage Arabic speakers in comparison to 10 Egyptian and 10 Palestinian non-heritage Arabic speakers. All participants were undergraduate college students ranging from age 19 to 23 years of age. Study results showed that the heritage Arabic speaking participants' narratives were less fluent and included more morphological agreement errors (such as subject-verb agreement for number and gender) which increased with distance between the subject and the verb especially in the use of numerals and number-noun agreement, codeswitching and transfer effect from their predominant language, English. These findings are consistent with studies on language attainment in heritage speakers of Spanish speaking communities which revealed a transfer effect from the dominant language as well as an incomplete acquisition in all language domains (Albirini et al, 2011).

To summarize, dialectal differences, bilingualism, and diglossia may interact differently within the Arab-American population than in the Arab world. In the Arab world, in general, literate individuals are proficient in both MSA and their respective dialect, whereas Arab-Americans may be literate in English but not Arabic. Moreover, Arabic-English bilinguals in the Arab world learn English in a typical sequential bilingual manner of acquisition in which English is learned in school and in large does not affect Arabic proficiency level. On the contrary, Arabic-English bilinguals in the U.S. may be heritage speakers of Arabic and may not have completely acquired their native language (Arabic dialect).

Therefore, it is important to keep in mind that Arab-Americans may have

deficiencies in their Arabic language skills in comparison to their English skills, which may lead to a clinical misdiagnosis of a language disorder. For example, heritage speakers of Arabic may have agreement errors in Arabic but not in English due to the reported incomplete acquisition of Arabic. This may lead to the assumption of morphological disorders that are reflected differently in both languages due to the difference between the two inflectional linguistic systems and not due to the typical incomplete acquisition of Arabic in heritage speakers. This issue becomes even more salient in light of the scarcity of Arabic-speaking SLPs in the U.S., the limited availability of resources on linguistic and cultural factors relevant to the Arab-American population, and the population's reluctance to access and accept health and special education services especially those outside of their immediate communities (Abu-Ras & Abu-Badr, 2008; Padela & Heisler, 2010).

The preceding discussion highlights the need for SLPs working with Arab-Americans to acquire foundational knowledge about characteristics of the Arab-American population, Arabic language, and culture. In order to insure that individuals from culturally and linguistically diverse populations receive culturally sensitive services, ASHA (2009) mandates that SLPs be educated on the linguistic and cultural aspects of communication and communication disorders as well as on culturally appropriate assessments and interventions. Such training is a prerequisite for certification in the field, and should ensure the provision of sensitive and appropriate speech and language services. This resource is an attempt to provide clinicians with cultural and linguistic information regarding the Arab-American population that will inform speech and language assessment and treatment.

#### **IV: Speech Language Pathology Services in Arabic**

## **Profession**

Speech and language services for Arab populations worldwide are underdeveloped, in part because of the shortage of certified Arabic-speaking SLPs, and in part due to the paucity of academic and clinical resources (Wilson, 1998; Khamis-Dakwar & Crowley, 2005, Khamis-Dakwar & Patel, 2005). In the Arab world, speech-language pathology is still a developing field. For example, in Kuwait, there are only 42 SLPs (both Kuwaiti and non-Kuwaiti) (Al-Khaledi, Lincoln, McCabe, Packman, & Alshatti, 2008); and in Egypt, there are only 125 phoniatrists and 250 logopedists (Kotby, El-Sady, & Hegazi, 2010). This means that there are approximately 16 SLPs for every million people in Kuwait, and 5 SLPs per million people in Egypt.

Similarly, in the U.S., SLPs from culturally and linguistically diverse backgrounds are underrepresented within ASHA, especially when compared to the increasing culturally and linguistically diverse population that makes up the U.S. According to the ASHA counts for 2008, 24.9% of the U.S. population are members of a racial minority while only 6.8 % of ASHA members, nonmember certificate holders, and international affiliates are members of a racial minority (ASHA, 2008). The ASHA count does not inquire about Middle Eastern cultural background<sup>8</sup>. The general categorization of racial minorities in the ASHA counts raises the likelihood that members of non-identified racial minorities are identifying themselves as white, due to the absence of explicit identification options. It has been documented that many Arab-Americans identify themselves as white as it is the most appropriate option to describe themselves in

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<sup>8</sup> Members are asked to identify themselves as one of the following: American Indian, Asian, African American or Black, Native Hawaiian, multiracial, or white. 92.9 % of the respondents identified themselves as white.

the U.S. census. Clarification of ASHA members' racial identification is essential for policy planning, and avoiding artificial underestimation of the diversity within the profession.

### **V: Arabic-English Bilingual Acquisition**

There is sparse literature on successive and simultaneous Arabic-English bilingual development. A growing literature is available on language development in bilingual Swedish-Arabic children with and without language impairment (Salameh, Håkansson, & Nettelbladt, 1996; Salameh, Nettelbladt & Gullberg, 2002; Salameh, Nettelbladt, & Norlin 2003; Salameh, Håkansson & Nettelbladt (2004) which we will not expand on due to the scope of the resource.

The few available studies on language development in Arabic-English bilinguals highlight the inter-variability in the perception and production levels within the Arabic-English bilingual population due to the differences in level of language input, language use, and age of acquisition affecting language proficiency in the two language varieties.

#### **Phonology**

One of the first and most studied domains in Arabic-English bilingual acquisition is the phonological domain. One of the first studies on Arabic-English bilinguals was a study conducted by Flege & Port (1981). This study examined the perception and production of English stops by Saudi Arabian students living in the U.S. for either less than one year or more than two years, compared to American English monolingual speakers. The study results showed that the English stops produced by Saudis had the phonetic characteristics of Arabic stops and not the English stops. Moreover, the study

results showed that the Saudi speakers had difficulty identifying the /p/ amongst all the different English stops. These results were argued to represent native language interference effect in the course of learning a second language. Contrary to the findings by Fledge & Port (1981) reporting that Arabic speaking adult learners of English have difficulty identifying and producing the English /p/, Shafiro, Levy, Khamis-Dakwar, & Kharkhurin (2012) found no perceptual difficulties in early Arabic English bilinguals. Shafiro et al (2012) examined perception of English consonants and vowels in English native and Arabic native speakers of English in the United Arab Emirates (UAE). This study examined 25 early Arabic-English bilinguals who cited Arabic as their native language and 17 native English speakers. Study findings revealed no significant accuracy differences between native Arabic and native English speakers when identifying English vowels and consonants.

Most of the available reports on Arabic-English phonological acquisition in children are available through the extraordinary work of Khattab (2002a; 2002b,2002c; 2007). Khattab compares the phonological productions of Arabic-English bilingual Lebanese children, born and raised in the United Kingdom, with Arabic and English monolingual controls matched for age, as well as caregiving adults focusing on the production of features that are exhibited differently in the two languages (i.e. vowels, v, l, and r). The results of her study generally reveal that Arabic-English bilinguals produce different variants of the examined consonant/feature in accordance to language context, similar to their corresponding monolingual controls. These differences in observed interference effect may be related to different manners of language acquisition since early studies relate to successive learners of English whereas the studies by Khattab (2002a,b,c;

2007) and Shafiro et al (2012) refer to simultaneous learners of Arabic-English.

### **Morphology and syntax:**

One study by Bader & Minnis (2000) addresses morphological and syntactical code-switching in an Arabic-English bilingual child from Jordan. The child in the study (and the child of the authors) acquired the two languages simultaneously as his mother speaks English, and his father speaks Arabic (Urban Jordanian dialect). The study revealed common morphological and syntactical strategies in Arabic-English code switching. The authors argue that these results violate the “free morpheme constraint”, and the “No equivalent constraint” which were set by Poplack (1978,1980).

The authors documented several morphological strategies in Arabic-English code-switching such as:

- Affixing the Arabic definite article ( *al/ il/*, or the enclitic preposition */bi/*, to an English noun and adjective, or noun phrase.
- Prefixing */ba/* to an English verb for indicating imperfect tense, prefixing */ta/* to an English verb for indicating present tense
- Sufficing Arabic objective pronouns to the English verb: or sufficing objective personal pronouns to English prepositions
- Using English definite and indefinite articles with Arabic words. Prefixing English negative */un/* to Arabic verbs.
- Sufficing the Arabic possessive pronoun to the English noun as well as sufficing possessive marker, the *-s`*, to Arabic words.
- Sufficing the English plural mark *-s* to Arabic words
- Mixing Arabic and English word order in possessive phrases, and adjective



phrases

- The deletion of the copula be in English and mixed English-Arabic sentences
  - The use of English subjective and objective personal pronouns with Arabic verbs
  - Using English possessive and demonstrative determiners with Arabic nouns and mixed Arabic-English compound nouns.
- Mixing between English `and` and its Arabic equivalent `wa`.

### **Arabic Language assessments**

Research on native Arabic language development is sparse and resources used for language assessment in the Arab world are mainly translated versions of English resources (Elgibali, 2000; Wiig & El-Halees, 2000; Yaakobi, Hadie, & Khamis-Dakwar, 2003; Khamis-Dakwar & Crowley, 2005; Patel & Khamis-Dakwar, 2005; Khamis-Dakwar & Froud, 2012). To date, only a handful of studies on Arabic language testing have been conducted, and these studies have involved mainly standardizing English-based language tests to use in assessing Arabic speaking children in the Arab world (e.g. Saleem & Dyson, 2003). Therefore, speech and language evaluation in the Arab countries mainly consists of subjective measures resulting in numerous false negative identifications (Wiig & Halees, 2000; Khamis-Dakwar & Crowley, 2007). Wiig & Halees (2000) reported that, “At times, English tests are translated literally and scores are interpreted against normative data developed from American or British-English speaking children” (p.261). Translated language tests do not take into account the unique linguistic and sociocultural features of Arabic and should not be used to diagnose a

communication disorder as they do not yield accurate information to the client/patient's performance. (Konhert, 2008).

Similarly, there is sparse literature on successive and simultaneous Arabic-English bilingual development that takes account of the diversity of place of origin within the Arab-American population. Consequently, Arab-Americans run the same risk of over- and under-identification of language impairment as do many minority groups in the U.S., due to inherent bias in the use and interpretation of norm-referenced measures.

Due to scant information on linguistic features of Arabic, and limited knowledge of cultural differences between Arab and American communities, many children may be provided unneeded therapy/services. This situation affects self-esteem, academic success, and social integration. The validity of the evaluation process may be enhanced if SLPs are provided with knowledge of linguistic and cultural variables that influence Arab-American children's acquisition of English. In turn this will decrease the risk of clinical misdiagnosis due to identification of a language difference as a disorder. This issue becomes even more salient in light of the shortage of Arabic-speaking SLPs in the U.S., and the limited availability of resources on linguistic and cultural factors relevant to the Arab-American population. Currently, ASHA multicultural resources present the Arabic phonemic inventory.

## **V. CULTURAL BACKGROUND**

In Arabic, speech and language therapy is referred to as "treatment" reflecting substantial cultural differences in the conceptualization of speech-language impairment and therapy. It is argued that this term "carries the implication of passive acceptance, rather than

active engagement, in the process of rehabilitation...and exemplifies the cultural focus on physical effects rather than mental effects of communication disorders.” (Khamis-Dakwar & Froud, 2012).

### **Cultural values**

There are very few studies on cultural effects and communication sciences and disorders or CSD. One of the rare studies examining the effects of cultural features of language on the shaping of perspectives in individuals with communication disorders and their families was conducted with a focus on individuals with aphasia and their families. The results of this 2009 study by Kardosh & Domico show several cultural differences that might interact with SLPs’ assessment and intervention services:

- 1) The study showed that caregivers of individuals with CSD may be less likely to disclose their feelings towards or expectations of treatment for their family member with CSD due to the feeling of “musayara”. Musayara in Arabic means going along and as a result of this cultural tendency not to challenge experts, caregivers are more likely to agree with a clinician’s proposed therapy plan whether they are comfortable with it or not. This should be taken into consideration when interviewing family-members as they may feel obligated to “go along” with the suggested goals and plans, even when they do not feel those plans reflect the outcomes they expect or desire for their loved one.
- 2) The study also showed a cultural tendency to observe success or failure of language treatment to be dependent on divine will. This belief system reflects the perceived lack of control with regard to

recovery.

- 3) The study discusses that language impairments and recovery are described using physical terms such as “heavy tongue” rather than linguistic or cognitive terms.

Khamis-Dakwar & Froud (2012) use a general framework to outline general cultural orientations of Arab-Americans to communication disorders in adults. Based on anecdotal evidence and their experience in the field working with Arab-Americans, Khamis-Dakwar & Froud (2012) provide the following guidelines:

- 1) Arab-American families may have a tendency to rely on a higher power. Family members may involve religious practices in the process of intervention and may also attribute progress to these outside involvements (such as healers, religious practice, experience, or interference).
- 2) Since language therapy is conceptualized as “treatment” in Arabic, the tendency to relate to the process as a treatment process, in which family members and the individual with a communication disorder play a passive role, may be observed. Hence, an inquiry and clarification of the role of the “therapist” is highly recommended as he or she may be viewed as the main agent in the process, and the expectations from the other agents may not be inherently imprinted as in western culture.
- 3) Arab-American families may prefer support provided by family, community, or internal mechanisms within their region rather than services provided by the governmental. Hence, word of mouth referrals within Arab centers are common as trust is built based on the experiences reported by other

community members.

- 4) Khamis-Dakwar & Froud 2012 report that “conceptions of disability in Arab-American communities tend towards the absolute “ (p. 286) making it necessary for the speech-language pathologist to explicitly address family member perception of progress in their loved one. Actively incorporating family members into an intervention plan may help them to better recognize therapeutic progress.
- 5) Khamis-Dakwar & Froud (2012) report “the integration with the family and social environment in Arab-American communities is typically harmonious” (p.286). Hence, children with communication disorders are not segregated in their family environment; and social effects may be less prevalent in these communities compared to other western communities.

It should be noted that the above studies examined Palestinian adults with aphasia and their families and that there have been no similar studies examining the cultural belief systems of families with children with CSD. Further studies are needed in order to elucidate the effects of cultural beliefs on language services for Arab-American children.

In addition to the information outlined above, there are several other topics worth mentioning as they may impact CSD services. The following information on consanguinity offers further insight into how Arab culture interacts with CSD services .

### **Consanguinity**

According to the World Health Organization (as cited in Hamamy, 2003, 1), a consanguineous marriage is defined as “a marriage between people who are second

cousins or more closely related.” Global estimates indicate about 20% of the world’s population live in societies that prefer consanguineous marriages due to culture and traditions (Modell & Darr, 2002, as cited in Hamamy, see also, Rajab & Patton, 2000) while Saad (2002) states that epidemiological studies indicate that specific parts of the world, consanguinity is favored at a rate of between 20-57% (see also, Abu-Rabia & Maroun, 2005; Bittles, 1993). Other estimates also indicate at least 8.5% of children have consanguineous parents (Modell & Darr, 2002, as cited in Hamamy). Examples of populations that favor consanguineous marriages are (Hamamy, ¶ 3): “Populations in the Middle East, North Africa, South West Asia and South India where total consanguinity rates range between 20-50+% of all marriages . . . Populations in South America, China and Japan where consanguinity rates range between 1-10% of all marriages . . . Small population isolates where inbreeding is common. These account for a very small percentage of the world population (e.g. Amish) . . . [and] recent migrants from Pakistan, India, the Middle East, North Africa and South West Asia who become permanent residents in Europe, USA and Canada. (e.g. Maghrebians in France, Turks in Germany, Pakistanis in the U.K.).”

Populations such as these favor consanguineous marriages for many cultural, traditional, and socioeconomic reasons such as “urban/rural residence of families within the country, education levels of parents, religion, and time trend” (Hamamy, 2003, ¶ 7, see also, Abu-Rabia & Maroun, 2005). For example, Hamamy maintains that such marriages are favorable for the status of women by strengthening the relationship and bond with in-laws as well as providing dependable protection when necessary, such as when faced with health problems, divorce, or death of the spouse. Financial issues

regarding marriage are more easily agreed upon within families due to similar statuses, family and social relationships, financial capabilities, religious beliefs, and education while also reducing uncertainties, both of which may be more difficult if marrying into an unfamiliar tribe or family (see also, Al-Abdulkarim & Ballal, 1998; Bittles, 1993; Rajab & Patton, 2000). More importantly, consanguinity essentially strengthens family ties and “solidarity” while ensuring properties are kept within the family (Hamamy, 2003; see also, Bittles, 1993; Rajab & Patton, 2000). These values are more closely held in rural habitats, poor communities and low levels of education (Abu-Rabia & Maroun, 2005; Bittles, 1993). Nevertheless, while considering these social and familial benefits, one cannot ignore the affects inherited genes have on the future generation’s physical characteristics and subsequent health and physical response to their environment.

### **Cultural Bilingualism**

Lastly it should be noted that most Arabs are exposed to two or more languages. This is either due to remnants of occupations (e.g. French, English) or domestic help which leads to pidginization. Hence, SLPs should be aware of all languages spoken by the child and his/her family members for comprehensive language evaluations. At times, transfer effects of French are evident in a Lebanese Arab-American child, since he/she acquired French and Arabic simultaneously and French was the predominant language. This resource focused on Arabic English contrastive analysis and a need to analyze children’s production in light of potential French transfer effect.

The second part of this resource attempts to address the need to provide professionals in the field with a resource highlighting the possible differences that

children from Arab-speaking communities may exhibit with respect to English language evaluation in general, and the Clinical Evaluation of Language Fundamentals -4 (CELF-4) in particular. The provided foundational knowledge of the linguistic features of Arabic language and development (from the three main regions of the Arab world) as well as an administration of the CELF-4 to typically developing Arabic-English bilingual children lead to the identification of the following biases in interpreting responses of typically developing Arabic-English American children using the CELF-4.



## **Part II: Use of the Clinical Evaluation of Language**

### **Fundamentals –4 with Arab-American Children**

**I. Transfer effects observed in the performances of typically developing Arabic predominant Arabic-English bilinguals: *Concepts and Following***

***Directions Subtest***

**Directionality effect.** The concepts and following directions subtest assumes correct responses based on the use of left-to-right orientation. Typically developing Arabic-English bilingual children between the ages 6-9 tended to use right-to-left orientation in responding to items including sequence items (such as first, last, second, third, and fourth). This is consistent with the right-to-left orientation of Arabic script.

**II. Observed responses of typically developing Arabic-English speaking children between the ages of 6-9: *Word Structure* subtest**

**Plurals**

- 90% of participating 7, 8, and 9 year-olds correctly used the English regular plural as tested in items 1 and 2. Participating 6 year-olds responded with 66% accuracy on the regular plural items.
  - The most common error, especially amongst the 6 year-olds, was the elimination of plural endings (e.g. horse/horses). This might be related to Arabic-English contrastive features (i.e. a transfer effect).
- All groups with the exception of the 9 year-olds, had difficulty with irregular plural marking as tested in items 3 and 4 (6 years: 41% correct, 7 years: 62.5% correct, 8 years: 70% correct).
  - The most common errors were the elimination of plural endings (e.g.

mouse/mice) and the affixation of the regular plural marker (e.g. mice/mice; childrens/children). Deletions of plural marking were most common in the 6 year-old group and regular marker affixation was observed in the 6 and 7 year-old groups. This observation might be related to Arabic-English contrastive features (i.e. a transfer effect).

### **Possessives**

- Participating 7, 8 and 9 year olds performed at over 90% accuracy on items requiring the use of English possessive nouns (7 and 8). The 6 year-old group had some difficulty with this section with an average score of 66% accuracy.
  - The most commonly observed error was the elimination of the possessive marker (e.g. Paula boots/Paula's boots) which was primarily seen in the 6 year old group. The use of the periphrastic 'N1 for/of N2' for the possessive marker (e.g. boots for the Paula or boots for Paula/ Paula's boots; for the king/the king's crown) was largely observed in the responses of the year-old group. This type of English error is consistent with correct way of denoting possessors in the Arabic language.

### **Tense**

In general, children's usages of tense markers were better than in items addressing inflectional and derivational markers at the early stages of English learning (i.e. participating children age 6 and 7 years). Most of the children's inaccuracies related to tense were in the area of future tense instead of present progressive tense (e.g. are eating, eating/will eat). Such inaccuracies were more common in the 6 year-old group.

- **Present tense.** On items examining the production of present tense, specifically third

person singular (items 5 and 6), most children in the 7, 8, and 9 year-old age groups scored a 90% or higher (6 years: 67% correct, 7 years: 92% correct, 8 years: 92% correct, 9 years 100% correct).

- The most common observed errors were the deletion of the present tense marker (e.g. fly/flies), or substituting the present tense marker with a present progressive marker (e.g, flying/flies). These errors were largely observed in the responses of participating 6 and 7 year-olds.
- **Present progressive tense.** Children correctly used the present progressive marker (i.e. Auxiliary + ing) on items 11 through 14 in all age groups (6 years: 85% correct, 7 years: 87.5% correct, 8 years: 98% correct, 9 years 100% correct).
  - Most of the children's inaccurate responses in this item involved the deletion of the auxiliary and/or subject (e.g. *–they are/ they are jumping; this boy and girl to playing with a rope/ the boys are jump roping*) and the use of prepositional phrases (e.g. *they are in the swings/ they are swinging*). These errors were mostly observed in 6 and 7 year-old groups.
- **Regular past tense.** The 7, 8 and 9 year-old groups demonstrated mastery on the items evaluating regular past tense (7 years: 100% correct, 8 years: 92% correct, 9 years: 83% correct). The scores of the 6 year-old group were approaching mastery levels (6 years: 83% correct).
  - Most incorrect responses were substitutions of the test marker (e.g. *climbes/climbed, is climbing/climbed*). These types of responses were mostly observed in 6 year-old group.
- **Irregular past tense.** Errors in the area of *irregular past tense* (item 32) were

observed in the performance of all examined age groups (6 years: 16% correct, 7 years: 85% correct, 8 years: 66% correct, 9 years: 83% correct).

- **Future tense.** Children in the 7, 8, and 9 year-old groups responded with over 90% accuracy on the items evaluating future tense (items 19 and 20). The 6 year-old group responded with 75% accuracy.
  - The responses *are going to eat/will eat* were observed in all age groups and were considered correct.

### **Derivation**

- **Nouns.** Correct noun derivation was observed in the older groups but not in the younger groups (6 years: 58% correct, 7 years: 62% correct, 8 years: 83% correct, 9 years: 100% correct).
  - Children tended to use lexically related nouns instead of derived nouns (rock star/singer; music teacher/singer).
- **Adjectives.** Correct adjective derivation (item 27) was observed in the responses of the older groups but not in those of the youngest group (6 years: 50% correct responses, 7 years: 62% correct responses, 8 years: 100% correct, 9 years: 100% correct).
  - Children in the 6 and 7 year-old groups tended to make errors related to inappropriate use of the adjective derivational suffix /ed/ (e.g. *lucked/lucky*).

### **Comparatives and Superlatives**

- Younger children had difficulty with comparative and superlative use but had reached mastery level by 9 years of age (6 years: 62% correct; 7 years: 75% correct; 8 years:

86% correct; 9 years: 96% correct)

- Inaccurate responses included the use of regular comparative structure (e.g. *bestest/best, fastest/fastest, biggest/best, goodest/best, faster/fastest, gooder/better*) or the deletion of the comparative marker (e.g. *fast/faster, good/better*). Such mistakes were most common in the responses of the 6 year-olds. The most frequent error observed across age groups was the use of *gooder/best*.

### **Pronouns and Copulas**

Difficulties using pronouns and copulas were evident in the typically developing Arabic-English speaking children used in this study, however, incorrect responses may be related to acceptable responses in Arabic.

- **Contractable copula.** In the area of contractible copula use (item 10), children in all age groups demonstrated mastery (6 years: 92% correct, 7, 8, 9 years: 100% correct).
- **Uncontractable copula.** In the area of uncontractable copula use (items 25 and 26) children in the 7, 8 and 9 year old groups demonstrated mastery (7 years: 100% correct, 8 years: 92% correct, 9 years: 92% correct). The 6 year-old group scored slightly lower (75% correct). Most correct responses across groups included the use of *he is/they are*.
- **Possessive pronoun.** The 9 year-old group was the only group to demonstrate mastery in the realm of possessive pronouns (item 15) (6 years: 59% correct, 7 years: 75% correct, 8 years: 67% correct, 9 years: 100%).
  - Children in all age groups would have reached mastery had *his/yours* and *mine/yours* been acceptable responses

- **Objective pronoun.** The 9 year-old group was the only group to demonstrate mastery in the area of objective pronouns (6 years: 70% correct, 7 years: 71% correct, 8 years: 83% correct, 9 years: 92% correct).
  - Children in all groups substituted *us* for *them*, especially in the 7, 8 and 9 year-old groups. Children in the 7 and 8 year-old groups would have also reached mastery had *us/them* been accepted as as correct responses.
- **Subjective pronouns.** All children had difficulty with subjective pronouns as tested in items 30 and 31 (6 years: 41% correct, 7 years: 50% correct, 8 years: 67% correct, 9 years: 75% correct).
- Even if alternate responses were accepted as typical of second language learning (e.g. *the school choir, the class, them*), children's performances would have been below 90% in the 6, 7, and 8 year-old groups (with the acceptance of alternate responses accuracy levels would have increased to: 6 years: 62% correct, 7 years: 75% correct, 8 years: 87% correct, 9 years: 100%).
- **Reflexive Pronouns.** Children also had difficulty with reflexive pronouns as tested in item 28 (6 years: 46% correct, 7 years: 69% correct, 8 years: 83% correct, 9 years: 75% correct).
  - Even if alternate responses were accepted as typical of second language learning (e.g. *hisself/himself*) performances would have remained below 90% accuracy in the 6 and 7 year-old groups (with acceptance of alternate responses accuracy percentages would have increased to: 6 years: 71% correct, 7 years: 69% correct, 8 years: 92% correct, 9 years: 92% correct).  
Other common error responses by typically developing Arabic-English

speakers were *him/himself* and *her/herself*. These responses were most common in the 6 through 8 year-old groups.

### III. Transfer effects observed in the performances of typically developing Arabic-English bilinguals: *Recalling Sentences Subtest*

#### Sentence Recall

- **Additions/substitutions/deletions of the article “the” and/or “a”.** Article deletions and additions were mainly observed in the sentence recall of children in the 7 and 8 year-old groups. See specific examples:
  - 7.10 year old male, consecutive English learner: *the boy bought **a** book for his friend who likes short stories/the boy bought **the** book for his friend who likes short stories; **the coach** gave the trophy to the team that won the track meet on Saturday/**coach** gave the trophy to the team that won the track meet on Saturday*
- **Substitution of the reflexive pronoun himself.** Several children substituted the reflexive pronoun *himself* with *hisself*. These substitutions were mainly observed in the 6 year-old group.
  - 6.6 year old female, consecutive English learner: *the boy fell and hurt **hisself**/the boy fell and hurt **himself**; the kindergartner cannot cross the street by **hisself**/the boy cannot cross the street by **himself***
- **Tense Agreement.** Children made several tense-based errors during sentence recall. Specific examples are as follows:



- 7.10 year old female, consecutive learner of English: *after the students finished the book, the teacher **will ask** them to write a report/after the students finished the book, the teacher **asked** them to write a report; the coach **cannot** find the uniforms that the team wore last year/the coach **could not** find the uniforms that the team wore last year*
- 8.1. year old male, consecutive learner of English: *the coach could not find the uniforms that the team **wear** last year/ the coach could not find the uniforms that the team **wore** last year*

Similar substitutions were observed in the productions of the verb *to be* in the early age groups.

- 6.1 year old male: ***were** the van followed by the ambulance/**was** the van followed by the ambulance*

Such substitutions were observed in all age groups.

- **Possessive marker deletion.** Several 6 year-old children deleted the possessive marker ('s) (e.g. cat food/cat's food).
- **Passive structure: Deletion or additions.** Deletions of the by phrase were mostly observed in responses of participating 6 year-olds during sentence recall of passive sentences (e.g. *the tractor **following** the bus/**was followed** by the bus; the book was not **return** to the library/ the book was not **returned** to the library*). Furthermore, additions of the by phrase were observed in the sentence recalls of several 7 and 8 year-olds. Substituting the active verb for the passive verb was also observed among children in these groups (e.g. *return/returned*). Some examples of this are as follows:

- 7.10 year old female, simultaneous learner of English and Arabic: *the book*

*was not returned **by the** library by the teacher/the book was not returned **to the** library by the teacher*

- *7.5 year old male, consecutive learner of English: the book was not **return** by the library by the teacher/ the book was not **returned** to the library by the teacher*
- *8.6 year old female, consecutive learner of English: the book was not returned **by the** library by the teacher/ the book was not returned **to the** library by the teacher; the rabbit was not put **by the** cage by the girl/ the rabbit was not put **in the** cage by the girl*

- **Relative pronoun errors.** Several deletions and/or substitutions of the relative pronouns (*that/who; -/who; for/that*) were observed in children's sentence recalls. Substituting *that* for *who* was frequently observed in all age groups (e.g. *my mother is the nurse **that** works in the community clinic/my mother is the nurse **who** works in the community clinic*).

- **Singular/plural substitutions.** Several singular plural substitutions were seen in children's imitations across groups but were more frequent in the 6 and 7 year-old groups. A specific example of this is as follows:

- 6.3 year old female, simultaneous English-Arabic learner: *tractors/tractor; teams/team, computer/computers.*

The most common substitution was boy/boys when repeating the target sentence, *didn't the boys eat the apples.*

- **Agreement based errors.** Agreement based recall inaccuracies were recorded in

all age groups.

- Specific agreement violations were deletions of agreement markers (e.g. *work/works* when asked to repeat the sentence, *my mother is the nurse who works in the community clinic*), inappropriate tense assignment (e.g. *sell/sold*, when asked to recall *the students collected and repaired the toys, and sold them at the fair*; *wear/wore* in, *the coach could not find the uniforms that the team wore last year*) and other substitutions (e.g. *is/was*; *could/can*).

**Several lexical and preposition substitutions were observed during this subtest as well.**

Age	Substitution
6 years	bus/ambulance(5), big/brown(8), anybody or somebody/anyone (9), coach/team(14), kindergarten/kindergartner(10) , castle or build castle /playcastle(11), made/built(11), tomorrow/tonight(12),sell/buy(15), school/class(15), communities/computers(19), wall/board(19), so/very(20), boy/coach(14), red shirt/uniform (14), got/bought(17), by/before(18)
7 years	big/ brown(8), anybody/anyone(9), kindergarten/kindergartner(10), castle/playcastle(11), since or -/because(12), boys/team(14), get or went to buy/stopped to buy(15), but/even though(15), worker or one/nurse(16), by, soon, or after/before(18), come or made /donated(19), person/student(20), happy/excited(20), children/students(22), prepared/repaired(24)

8 years	by / before, after/ before(2), library/librarians, anybody/anyone(9), castle or king's play castle/play castle(11), since/because(12), today/tomorrow(12), wore/wrote(14), worker/nurse(16), brought/bought(17), by, instead, or after/before (18), commuter board/school board(19), person/student(20), get surprise/win a prize(21), class/dance(21), the report/the book(22), team/trophy(23)
9 years	sandcastle/playcastle(11), told/asked (22), teacher/librarian(27), started/finished(26), before/after (28)

Age	Substitution
6 years	put on/put in(6), -/ate all of(8), stay all/stayup(12), ate at tonight/late tonight(12), returned to/in(13), from/to(13), to class/for class(15), award from the art show or award in the art show/award at the art show(20)
7 years	on/in the cage(6), ate all the/ate all of the(8), stay late up/stay up late(12), to/for(15), works at/in(16) by/before noon(18)
8 years	at/in the(16), to/for his friend(17), by/before(18), from/at, sell tickets for /sell tickets to the dance (21) , at/on Saturday(23)
9 years	into the cage/in the cage(6), by/before(18), walked to/across (29)

#### IV. Transfer effects observed in the performances of typically developing Arabic-English bilinguals in the *Recalling Sentences Subtest*

##### Style: possible cultural effect

- **Sentence length.** Overall, participating children produced longer sentences than those sentences presented in the CELF-4 manual. This may indicate a possible cultural style effect. Additionally, an examination of children's performances on this subtest revealed that children tended to produce third and first form productions (I and he) to describe presented pictures.
- **Articles.** Additions or deletions of the article *the* and/or *a* were observed in the formulated sentences of 6 and 7 year-olds (e.g. *children are playing/the children are playing; gave me the food/gave me food; the mother gave the kid food/the mother gave the kid the food*).
- **Subject drop.** Several 6 year-old children dropped the subject in their formulated sentences. This reflects Arabic sentence structure (e.g. *forgot/I forgot; running/they are running*).
  - **Prepositions.** Several 6 year-old children made errors with prepositions (e.g. *playing on the video/playing video*).
- **Word order.** The following English productions were consistent with Arabic word order:
  - *Always the boy takes a long time to wash his teeth and wash his hands. (3)*
  - *Never the dog stooped. (6)*
  - *The boy is quickly running. (12)*
  - *The boys are playing with their dad a video game; A video game with their*

*dad. (1)*

- *The boy quickly tried to finish his breakfast and go outside. (12)*

Most of these productions were observed in productions of the 7 and 8 year-old children. Instances of placing the adjective before the verb were also seen in the 8 year-old group.

- **Tense agreement.** Present progressive and future tense errors were more frequent at the age of 6 years, while present tense errors were more common in the sentences of the 7 year-olds. Specific examples are shown below:

- *The children is playing. (1)*
- *Until the store is open then they will go buy a bicycle. (21)*
- *If the bus stop/stops. (13)*
- *Before she finish/finishes shopping. (15)*

### **Conclusion**

Assessing language abilities is one of the most important roles of a speech-language pathologist (SLP). Bias in the assessment and evaluation of children from culturally and linguistically diverse ( CLD ) population has been largely documented in the literature (For a review on language assessment with developing bilinguals See Konhert, 2008). In this resource, we focused on the inherent examining bias of standardized assessment tools, specifically the CELF-4, in the language assessment of Arabic-English speaking children. This approach was used for several reasons. First, many Arabic speaking children often appear to be English dominant speakers due to Arabic attrition (See earlier section on Arabic heritage speakers). Second, as mentioned earlier in this resource (see the chapter on SLPs in the Arab world) there are very few

Arabic-speaking SLPs and appropriate assessment tools for Arabic-English bilinguals. Third, the practice of using standardized assessment tools (specifically CELF 4) in assessing children from CLD population is well documented in the field of speech and language. This does not disaffirm the recommendation to assess a child in all of his/her languages, nor does it dissuade doing a thorough assessment using a variety of tools and strategies before making a clinical decision.

We anticipate this resource will assist SLPs in their interpretation of children's responses on the CELF -4 to minimize the effect of linguistic-cultural biases as well as limited experience in English. We assume that when assessing Arabic-English bilinguals, the CELF-4 will not be the only source of assessment information but will be used in conjunction with other information gathered by the evaluating SLP. We hope that as a result of this resource, SLPs will be aware of the caveats of using CELF-4 *standard* scores when assessing Arabic-English bilingual children. This resource was designed to provide information on the *non-standardized* use and interpretation of the CELF-4 by enabling SLPs to identify errors that appear to be the result of first language transfer effect, cultural background interference, and dual language acquisition in Arabic heritage speakers (See Konhert , 2008 for a review on the use of formal assessment in evaluating developing bilinguals) .

As a result of the increase of Arabic-speaking English Language Learners (LLEs) in the U.S. (Batalova & Margie, 2010 and the increase in referrals for language evaluation of Arabic-English speaking children, further educational tools are needed to insure that SLPs separate language disorders from language differences in this population. Resources providing information related to the use of informal assessment

tools in language assessment (such as speech sampling analysis guidelines for assessing Arabic and English) are much needed.

This resource did not report on children's Arabic abilities (which were assessed informally and will be reported in future publication), however, the reported language attrition in heritage speakers learning English as a second language should be considered when making clinical decisions. SLPs tend to generalize the assumption that if intrinsic language learning problems are present, error patterns will be observed in both languages of a bilingual child. SLPs need to be cautious of making such a generalization when assessing Arab-American children as this may not apply to Arabic heritage speakers who are learners of English. These children may exhibit grammatical error patterns in both languages that are underlined by incomplete acquisition of both Arabic and English.

We hope this resource provides useable guidelines to reduce bias inherent in the use of the norm-referenced standardized tests such as the CELF 4 in evaluating Arab-American children. This resource is just the first step in our attempt to enhance the quality of assessment services for Arab-American children and will be complemented with the development of alternative assessments for use with Arabic-English speaking children.



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