The American University in Cairo

School of Humanities and Social Sciences

EMPHATIC SOUNDS IN EDUCATED CAIRENE ARABIC:
WHAT TO TEACH TO AFL STUDENTS?

A thesis submitted to

the Arabic Language Institute

in partial fulfillment of the requirements for
the degree of Master of Arts

by

Jean N. Druel

MA in the Philology & History of the Ancient East
MA in Theology

under the supervision of Dr. Zeinab Ibrahim

June/2006

The American University in Cairo

EMPHATIC SOUNDS IN EDUCATED CAIRENE ARABIC: WHAT TO TEACH TO AFL STUDENTS?

A thesis submitted by Jean N. Druel

to the Arabic Language Institute

June/2006

in partial fulfillment of the requirements for
the degree of Master of Arts

has been approved by

Dr. Zeinab Ibrahim _Zeinab Ibrahim_

Thesis Committee Chair
The American University in Cairo

Dr. Rawhiya Ahmed _Rawhia Ahmad_

Thesis Committee Reader
University of Alexandria

Dr. Ragia Effat _Ragia Effat_

Thesis Committee Reader
The American University in Cairo

Department Chair _May, 2006_   Dean   **3 1 MAY 2006**
Department Chair   Date   Dean   Date

ABSTRACT

University Name: The American University in Cairo

Thesis Title: Emphatic Sounds In Educated Cairene Arabic: What To Teach To AFL Students?

Student's Name: Jean N. Druel

Adviser's Name: Dr. Zeinab Ibrahim

Statement of the Problem: There is not a full correspondence in Arabic—and especially in the dialects—between the phonological level and the phonetic level: Some sounds which are phonologically emphatic are phonetically realized as non-emphatic, and some sounds which are phonologically non-emphatic are realized as emphatic. This study would like to explore the emphatic feature of the educated Cairene Arabic dialect. This phenomenon is either unpredictable or it follows rules. In both cases, AFL teachers have to consider how they will tackle the issue with their students.

Methods and Procedures: The methodology will consist in analyzing a corpus and the problematic contexts for emphasis, as described in the literature. A special attention will be given to the following phonemes /r, q, χ, ʁ, ʕ and ħ/ and morpho-phonemes (feminine plural /–aːt/). The problematic contexts for emphasis will first be delimited, then these contexts will be analyzed and labeled as [+emphatic] or [–emphatic]. In order to assess emphasis, this research will rely on the subjective listening. The choice of the corpus will be guided by TAFL perspectives: It will consist in episodes of the television program al-Ḥaqīqah "The Truth" which will serve here as a "normative" level of the

language ('ammiyyat al-muthaqqafīn, as described by Badawī, 1973). This program is a political talk-show. The research gathers twenty-two informants.

Findings and Conclusions: In most of the cases, emphasis is a predictable feature of the Cairene Arabic educated dialect. Phonetic rules have been deduced from the corpus for the following phonemes and morpho-phonemes: /r, q, χ, ʁ, ʕ, ħ/ and the feminine plural marker /–aːt/. Additional findings are provided for the following morpho-phonemes: compounds with /–taːʃar/ "-teen", the adverbial marker /–an/, the feminine *nisba* marker /–ijja–/ and the suffix pronoun /–ka/ "your". Some of these eleven (morpho)-phonemes act as emphasis-triggers, under certain conditions, some of them block the emphatic spread, others undergo emphasis without either blocking nor triggering it. The phoneme /r/ is the most doubtful one and a more specific research should be done on it.

TABLE OF CONTENTS

LIST OF TRANSLITERATIONS

A rationale for the transliteration system will be given below, especially for the phonetic difference between plain and emphasized sounds. However, the reader will find here all the symbols used in this research. When two symbols are given for one single Arabic letter, separated by a coma, they correspond to different language varieties (Classical, Modern Standard, Colloquial).

Arabic	Plain	Emphasized	In References (Library of Congress)
Consonants			
ء	ʔ	ʔ	ʾ (omitted when initial)
ب	b	ḇ	b
ت	t	ṱ	t
ث	θ, s, t	θ, ṣ, ṱ	th
ج	ʤ, g	ʤ, ɡ	j
ح	ħ	ħ	ḥ
خ	χ, x	χ, x	kh
د	d	ḏ	d
ذ	ð, z	ð, ẓ	dh
ر	r	ɼ	r
ز	z	ẕ	z
س	s	ṣ	s
ش	ʃ	ʃ	sh
ص	ṣ	ṣ	ṣ
ض	ḍ	ḍ	ḍ
ط	ṭ	ṭ	ṭ
ظ	ð̣, ẓ, ḍ	ð̣, ẓ, ḍ	ẓ
ع	ʕ	ʕ	ʿ
غ	ʁ, ɣ	ʁ, ɣ	gh

ف	f	f	f
ق	q	q	q
ك	k	k	k
ل	l	l	l
م	m	m	m
ن	n	n	n
ه	h	h	h
و	w	w	w
ي	j	j	y

Vowels and Diphtongs

ا	aː	eː	ā
ى	aː	eː	á (alif maqṣūrah)
و	uː, oː	uː, oː	ū
ي	iː, eː	iː, eː	ī
بَ	a	e	a
بُ	u, o	u, o	u
بِ	i, e	i, e	i
بَو	aw, oː	ew, oː	aw
بَي	aj, eː	ej, eː	ay
يِّ	ijj, iː	ijj, iː	iyy (final form: ī)
بُوّ	uww, uː	uww, uː	uww (final form: ū)

Other

ة	a, a(t), et	e, et, et	h, t (construct state)
ال	al, el, l	el, el, l	al, l (even before "sun"-letters)

In order to distinguish a romanized /h/ in contact with another consonant /t, s, k, g/ from the romanized /th, sh, kh, gh/, a single prime ' is placed between the two distinct letters as in /as'hal/ "easier".

LIST OF CHARTS

CHAPTER I. INTRODUCTION

This research aims at studying the phonetic phenomenon of emphasis of the Cairene spoken Arabic. The mere definition of emphasis is a problematic issue, and this point will be dealt with in the first part of this research. While emphatic sounds are a well-known phenomenon in both classical and modern standard Arabic, they have received little attention in the study and in the teaching of the dialects. In the case of classical Arabic, early grammarians have made precise descriptions of the emphatic sounds (in terms that many contemporary researchers still find efficient). These sounds also play a great role in the tajwīd "Liturgical Recitation of the Qu'rān", where they have been described in most precise terms. In the case of Cairene colloquial Arabic, too few grammars and dictionaries insist on the emphatic sounds— except in the case of the primary emphatic phonemes /ṣ, ḍ, ṭ, ð̣/[1]— and the result is that students of Arabic as a foreign language (AFL) rarely master the phenomenon in detail.

The aim of this study is to describe and analyze the emphatic sounds in the Cairene dialect, to find out if there are predictable rules and to apply the findings to the teaching of Cairene Arabic to non-native adult students.

---

[1] For consistency reasons, /ð̣/ will note the *phonemic* emphatic interdental fricative, even in colloquial Arabic, where its *phonetic* realization is emphatic alveolar fricative [ẓ]. This, in order to distinguish clearly the phonemic and the phonetic level.

I.1. The Technical Linguistic Terminology

I.1.a. The Transliteration System

Two parallel systems will be used throughout this research to note emphatic sounds: A phonemic system and a phonetic system. The first one refers to phonemes, and the second one refers to the actual realization of the phonemes. The whole problem— and this is the topic of this research— is that there is not a full correspondence between both levels. As far as phonetic emphasis is concerned, the international phonetic alphabet (IPA)[2] has three notation systems for what corresponds to emphatic sounds (pharyngealized and/or velarized): The first system is to add a small ʕ ('ayn) as an exponent for pharyngealized sounds (bˤ), the second system is to add a small ɣ (ghayn) as an exponent for velarized sounds (bˠ), the third system— that applies to both pharyngealized and velarized sounds— is to cross the symbols with a small hyphen (ƀ). This third convention has been chosen in this research, in order not to decide whereas emphatic sounds are pharyngealized or a velarized. Thus, the hyphened symbols will refer to "emphasized sounds", whatever their underlying phoneme [ƀ, ɸ, ɫ... , ɵ, ʉ...]

As for the phonemic level, the IPA has no specific notation. The following under-dotted symbols will refer to the emphatic phonemes, whatever their phonetic realization: /ṣ, ḍ, ṭ, ð̣/. So, a /ṣ/ notes a phonemic ṣād; [ṣ] and [s̩] note the non-emphatic and emphatic realizations of /ṣ/. Likewise, a /s/ notes a phonemic sīn; [s] and [s̩] note the non-emphatic and emphatic realizations of /s/. The term "allophone" refers to the different possible realizations of one phoneme: For example, [s] and [s̩] are allophones of

---

[2] For more information on the IPA, see the *Handbook of the International Phonetic Association* (1999).

/s/. This transliteration system will be applied throughout this research, even when quoting authors' works, in order to facilitate comparison and reading.

For the references it would have been too heavy to use this phonetic system. In this case, the romanization system of the Library of Congress was adopted. Practically, the first two system will always be used between brackets (square brackets for the phonetic transliteration, and slashes for the phonological transliteration). The third system will be used without any bracket.

I.1.b. A Definition of Emphasis

The general term "emphasis" corresponds to the traditional Arabic term: tafkhīm, and covers a wide spectrum of articulatory and acoustic effects. The articulatory effects are described in the literature as labialization, velarization, pharyngealization, uvularization, guttural assimilation, or backing. Not all researchers agree on these effects. The acoustic effects are described as backing, lowering, low tone sounds, dull sounds, tongue root retracted sounds. As will be seen below, Watson (1995) notes that the articulatory phenomena all have in common that they involve an expansion of the volume of the mouth and a peripheral constriction (lips, velar and pharynx). In this research, the single term "emphasis" will be used as the equivalent of the traditional Arabic term tafkhīm: A single word aiming at describing a unified phenomenon, that gathers varied acoustic and articulatory phenomena. In the literature review, all these phenomena— and the authors' contradictory points of view— will be described in detail.

In Arabic, emphasis is a twofold phenomenon, at both the phonetic level (sounds) and the phonemic level (phonemes). At the phonemic level (the way sounds

3

organize in a particular language in order to carry meaning), emphasis is a distinctive feature. This means that the meaning of the word changes if it contains emphatic phonemes or not, as in /ti:n/ "figs" and /ṭi:n/ "mud". Such minimal pairs do not exist in English for example, where emphasis plays no role in the meaning (phonemic level). Moreover, emphasis also plays a role on the phonetic level (the way sounds are uttered, independently of the meaning). For example, some people would pronounce /ra:gil/ "man" with emphasis [ra:gil][3] or without emphasis [ra:gil], depending on their gender, economic level, etc... Lastly, both phenomena usually interfere: It often happens that the emphasis of an emphatic phoneme spreads onto the other syllables of the word, as in /muwa:ṣala:t/ "communications" that is pronounced [muwaṣala:t]. In this case the emphasis of /ṣ/ spreads in both directions (leftwards and rightwards) onto the whole word. This spread can eventually be blocked by a phoneme, either rightwards or leftwards, as in /muʕtaqala:t/ "detention camps" which is usually pronounced [muʕtaqala:t]. Here, the phoneme /l/ blocks the rightward emphatic spread, since all the phonemes in the word are emphasized before /l/, and none after.

Another source of confusion can come from the terminology used to describe the emphatic sounds. Linguists describe the sounds according to their place of articulation: Labial, interdental, alveolar, palatal, velar, uvular, pharyngeal (or guttural), and laryngeal (or glottal). For example, /s/ is an alveolar sound in Arabic. Then an emphatic /ṣ/ is both alveolar *and* emphatic. In this case, emphasis is a secondary

---

[3] The technical notation system used by linguists makes a difference between the phonological word, noted between slashes, as /ra:gil/, and the actual pronunciation in a given dialect, or context— the phonetic level, or the surface level— which is noted between square brackets, as [ra:gil].

4

articulation, the primary articulation place being the alveoli. Researchers disagree in the description of this secondary articulation place: Is it laryngeal, pharyngeal, uvular, labial? Is it both labial and pharyngeal? As was said above, this research will follow Watson (1995) and assume that the feature "emphasis" is one, and gathers— depending on the primary articulation place of the sound— more than one of the above mentioned features: Laryngeal, pharyngeal, uvular, and labial. The phonemes which have this secondary emphatic feature are /ṣ, ḍ, ṭ, ḏ̣/ (and scholars confusingly call them "the primary emphatics" because of their *phonemic* emphasis, and because their emphasis spreads onto the other sounds in the word), but the list increases to all the phonemes when it comes to their actual realization: Potentially, all sounds can be emphasized when they surface in a given word: [ʔ, ɓ, ʈ, θ, ʤ, ɗ, ð, etc...] Scholars call these sounds "the secondary emphatics", because their emphasis is triggered by the "primary emphatics".

For some other sounds in Arabic, emphasis is a primary articulation feature, as it is the case for example for the pharyngeal sounds /ħ, ʕ/, for the uvulars /q, χ, ʁ/... which are naturally pharyngealized, uvularized... However, researchers disagree on these sounds, as being primarily emphasized, just as they disagree on the articulatory nature of emphasis.

In order to measure emphasis, researchers usually measure the frequency of the sound formants,[4] F1, F2, and F3. All vowels are characterized by certain frequencies of vibration that overlap to produce one single sound. Researchers have found that three main frequencies— also called overtone pitches— overlap in each sound, and they named

---

[4] For more information on the sound formants, see Ladefoged (2006, pp. 181-184).

5

these frequencies F1, F2, and F3. The two first formants are usually enough to distinguish sounds. F1 typically ranges from 200 to 700 Hz, from the most closed vowels [i, u] to the most open ones [a, ɑ]. F2 typically ranges from 500 to 3000 Hz, from the most backed vowels [u, o, ɑ] to the most fronted ones [i, e, a]. Vowels are described according to these two axes: F1=Close→Open and F2=Front→Back. Thus, a vowel can be fronted and close [i], fronted and close-mid [e], fronted and open [a], backed and close [u], backed and close-mid [o], backed and open [ɑ]. Lastly, emphasis is described, in acoustic terms, as both a raised F1 (opening effect on the vowels) and a lowered F2 (backing effect).

I.2. The Problem at Stake

Before presenting the outline of this research, it is useful to present the reader with some doubtful cases in the Cairene dialect so that the topic of this research becomes less theoretical.

1) Most people— and especially males— would pronounce [rɑːgɨl] "man", which is phonologically /raːgil/. The /r/ is emphasized into [ɾ], thus emphasizing the whole word. Compare with the verb [raːgiʕ] "to revise", which is phonologically /raːgiʕ/. There even exist minimal pairs such as [rɑːsi] "my head" and [raːsi] "anchored" which are phonologically /raʔsiː/ and /raːsiː/. The first word is entirely emphasized whereas the second is not.

2) There are some other examples of variations in emphasis that can be observed such as the verb [ṣaddaʔ] "to believe", which is phonologically /ṣaddaq/. The

/ṣ/ has lost its emphasis in the Cairene dialect. Compare with the adjective [basiːt] "simple", which is phonologically /basiːṭ/. Here the /s/ has been emphasized into [ṣ], as well as the whole word.

What differs between these contexts? Are these variations free or predictable? What to teach to non-native students? Do the "primary emphatics" alone trigger emphasis? How does this emphasis spreads onto the adjoining sounds? Does it spread to the left until the beginning of the word? Does it spread to the right until the end of the word? Are there sounds that can block this spread? This will be the topic of this research.

I.3. The Socio-Linguistic Variables

At this point, the question of a "normative" language to be taught cannot be avoided. Research has shown that emphasis is linked to socio-linguistic factors such as education, gender, economic level; and other possible factors could have been studied as well, such as attitude to the language, religion, mastering of other languages… However, in the field of AFL, teachers have to define a "normative" type of colloquial Arabic that they want to teach to their students. In this research, it will be assumed that AFL students need to be taught a specific level of colloquial which has been described as ʿammiyyat al-muthaqqafīn "Colloquial of Educated Persons" (Badawī, 1973). Badawī defines this level of the language as both the most colloquial version of the classical language and the most classical version of the colloquial (p. 148). Like the other levels, it is also defined according to the specific contexts where it should be used (discussions about politics, art, culture in general) as well as to specific levels of education and culture of the speaker

(p.150). Badawī adds that in Egypt, the adjoining upper level of the language (fuṣḥá al-'aṣr "Contemporary Classical Arabic", also referred to as MSA, modern standard Arabic) is not used in spoken conversation. This usage is transferred to 'ammiyyat al-muthaqqafīn (p. 150). It will be assumed in this research that it is relevant to study only this level of the language, thus controlling other socio-linguistics variables and meeting AFL students needs and expectations.

CHAPTER II. REVIEW OF THE LITERATURE: EMPHASIS IN ARABIC

In order to have a wider view of emphasis in Arabic, a brief summary of this phenomenon will be presented here, for the three following "moments" on the Arabic continuum: tajwīd "Liturgical Recitation of the Qur'ān", fuṣħá al-ʿaṣr "Contemporary Classical Arabic", and varied Arabic dialects. Although our research will focus on the dialects— and especially on educated Cairene Arabic, it is worth knowing how emphasis behaves in Arabic in general. The choice of tajwīd and fuṣħá al-ʿaṣr as the two other moments on the continuum was guided by practical reasons: In tajwīd, the rules for emphasis are very well codified, and they differ significantly from the rule in fuṣħá al-ʿaṣr. As for this later form of Arabic, as defined by Badawī (1973), it is often considered by Arabs and scholars as today's reference for Arabic grammar, and it is this level of the classical language that is taught in universities.

After the presentation of the rules of emphasis in tajwīd and fuṣħá al-ʿaṣr, a very detailed literature review of emphasis in the dialects will be presented, covering the last ten years, from 1995 until 2005. This will be the main focus of this research.

II.1. Emphasis in Tajwīd

In tajwīd, emphasis is triggered by the primary emphatics /ṣ, ḍ, ṭ, ð̣/ and the uvulars /q, χ, ʁ/ (Samātī, 2005, p.43), which are naturally uvularized. The phonemes /r/ and /l/ are special cases since they trigger emphasis only in particular cases. As for /l/, it is emphasized only in the word /al-laːh/ "God", and this depends on the *preceding* vowel:

If it is preceded by /a/ or /u/, it is then realized as [ɐl-lɑːh] as in [ʕinda-l-lɑːh] "near God". If it is preceded by /i/ it surfaces as [al-laːh] as in [li-l-laːh] "to God".

As for /r/, it depends on the *following* vowel. It the following vowel is /i, iː/, it is not emphasized (as in [tukrimuːn] "you honor"), and if the following vowel is /a, aː, u, uː/ it is emphasized (as in [ʔakrɐm] "more honored"). If /r/ is not followed by a vowel, it depends on the *preceding* vowel: After /a, aː, u, uː/, /r/ is always emphasized (as in [ʔaʀsil] "send", [zuʀtum] "you visited"). After a /i/ which is part of the stem, /r/ is not emphasized (as in [firʕawn] "Pharaoh", [maqɑːbir] "graves"), unless it is followed by a primary emphatic phoneme or a velar (as in [mirsɑːd] "embush", [firqɑh] "clan"). After a non-stem /i/, it is emphasized (as in [iʀdʒaʕuː] "return", [ʀabbi ʀħamhumaː] "Lord, have mercy on them"). Lastly, if /r/ is neither followed nor preceded by a vowel, as it may be the case at the pause, it depends on the vowel that lies before the cluster: If it is /a, u/, /r/ is emphasized (as in [fadʒʀØ][5] "dawn", [χusʀØ] "damage"); if it is /i/, then /r/ is not emphasized (as in [ħidʒrØ] "intelligence", [ðikrØ] "renown").

---

[5] The symbol Ø will note the pause. The sequence is followed by no phoneme.

These data can be summarized in the following chart:

/r/	Before /i, i:, ri, ri:/	Before /a, a:, ra, ra:, u, u:, ru, ru:/	Before /ṣ, ḍ, ṭ, ẓ, q, χ, ʁ/	Before /j/	Before other consonants	At the pause
After a stem /i, i:/			[ɾ]		[r]	
After a non-stem /i/			no data available		[ɾ]	✕
After /a, a:, u, u:/	[r]	[ɾ]	[ɾ]	doubtful	[ɾ]	
After /aC, uC/			✕	✕	✕	[ɾ]
After /iC/			✕	✕	✕	[r]

Chart 1: The emphasis rule for /r/ in tajwīd "Liturgical Recitation of the Qur'ân".

In this chart, a shadowed cell means "/r/ is emphasized"; a crossed cell means that the form is morphologically impossible. From this chart, the following conclusions can be drawn:

1. /r/ is dominantly an emphatic phoneme. However, a following /i, i:/ des-emphasizes it, as does a preceding stem-/i, i:/ if it is not followed by a vowel nor an emphatic. See [mina-n-na:ri] "from the fire", [ʔanṣɑ:ri:] "allies", [firʕawn] "Pharaoh", [maqɑ:bir] "graves".

2. The only case where emphasis spreads *leftwards* is when /r/ is in a non-emphatic context, but is *followed* by an emphatic consonant. In these cases, the preceding /i/ is weaker than the following emphatic. See [mirsˤɑːd] "observation post", [firqɑ(t)] "troop", [qirtˤɑːs] "paper".

3. The sequence /Vrj/ is problematic and deserve a special attention. Too few information is available in order to decide whether /j/ behaves here as /i/ or as a non-emphatic consonant. The whole Qurʾānic text contains only three words that contain the /Vrj/ sequence (/mirja(t)/ "doubt", five occurrences; /qarja(t)/ "village", thirty-eight occurrences; and /marjam/ "Mary", thirty-four occurrences). The first word surfaces as [mirja(t)]. However, for /qarja(t)/ and /marjam/, some authors describe the /r/ as emphatic (*Muṣḥaf al-tajwīd*, 1999) and some as non-emphatic (Samātī, 2005, p. 45). This controversy shows that for some authors, /j/ behaves as /i/ and blocks the emphasis of /r/, whereas for others, /j/ behaves like any other non-emphatic consonant and it does not block the emphasis of /r/.

4. Researchers in acoustic phonetics (Norlin, 1987; Rajouani et al., 1987; Alioua, 1997) have consistently shown that emphasis cannot be put down to the consonant alone, nor to the vowel alone, but to both (its minimum domain is /CV, or VC/). In the case where /r/ is followed by a non-emphatic consonant, how can it be emphasized if the preceding vowel is not emphasized itself (as in [ʔarsil] "send", [zurtum] "you visited", [fadʒrˤØ] "dawn", [χusrˤØ] "damage")? If these acoustic results are right, /r/ is either non-emphatic in these contexts or the preceding vowel is emphasized. This has never been studied in the particular case of tajwīd.

5) Emphasis in tajwīd spreads only rightwards (Nelson, 2001, p. 23) and is limited to the following vowel only. The only exception to this rule is the case of /r/ within the sequence /–irC̣–/ which surfaces as [–irC̣–], as mentioned above. This is due to the fact that the consonants are clearly identified as either emphatic (C̣ =/ṣ, ḍ, ṭ, ð̣, q, χ, ʁ/) or non-emphatic, and that only /r/ and /l/ break this rule (and the latter, only in one word). Since emphasis spread is limited to the next vowel only, it means that any non-emphatic consonant is a blocker to the emphatic spread in tajwīd.

II.2. Emphasis in Fuṣḥá al-ʿAṣr

Unlike in fuṣḥá al-turāth "Heritage Classical Arabic", the highest level of classical Arabic according to Badawī (1973, p. 89) where he makes a difference between emphasis, which is triggered the emphatics /ṣ, ḍ, ṭ, ð̣/, and labialization which is triggered by the uvulars /q, χ, ʁ/ and the pharyngeals /ħ, ʕ/ (p. 121), fuṣḥá al-ʿaṣr "Contemporary Classical Arabic" has lost the labialization feature (p. 138), with the exception of the uvular /q/ where some kind of labialization remains, especially in male pronunciation (p. 137). Emphasis and labialization, have the same backing auditory effect on the following /a, aː/. Nothing is said about the other vowels. Harrell (1957) in his study of the dialect includes the pharyngeals /ħ, ʕ/ in the list of the consonants that trigger emphasis. The other authors, quoted by Shorafat (1987), agree on the following list: /ṣ, ḍ, ṭ, ð̣, q, χ, ʁ/ as for the consonants that trigger emphasis and eventually disagree on the so-called "secondary" emphatics, which include /ḷ, ṛ/ in classical Arabic.

As for the spread of emphasis in classical Arabic, Rajouani, Najim, and Chiadmi (1987) state the following rules, based on previous studies and on their own work: Pharyngealization spreads, at least, rightwards and leftwards to the adjacent vowel, and, at most, to the whole word. High vowels /i, iː, u, uː/ block this spread. Shorafat (1985) adds to these rules the fact that emphasis also spreads to any adjacent consonant, not only to the adjacent vowels, as in /iṣtabara/ "to be patient", which surfaces as [iṣtabara], or /iḏtalama/ "to suffer injustice", which surfaces as [iḏḏalama] (after assimilation).

In order to have a better understanding of what is at stake here, it may be interesting to quote Badawī's (1973) remark saying that the pronunciation of fuṣḥá al-ʿaṣr is always influenced by the colloquial background of the speaker (p. 138). Thus, some discrepancies between the findings of the researchers may find here an explanation. Another possible source for discrepancies lies in the fact that emphasis is not an on/off phenomenon: It is described as gradient by some authors (Ghazeli, 1982; Rajouani et al., 1987) and the acoustic measures also show that the formant values change during the utterance (Alioua, 1997). The previous literature review on dialects has shown that all these phenomena are also found in the dialects.

II.3. Emphasis in the Arabic Dialects

This review aims at presenting what issues were discussed in the last ten years concerning the phenomenon of emphasis in Arabic dialects, and how researchers used to tackle these issues. This review will not be limited to Cairene Arabic, in order to have a broader view on emphasis in the various Arabic dialects. It was assumed that similar

phenomena could occur in more than one dialect, even if they had been studied in only one of them. This will give a better idea of what has been studied in one of the Arabic dialects, and what is left to study in the Cairene dialect. The review covers the period from January 1995 till December 2005.

Three older studies were included in this review (Harrell, 1957; Norlin, 1987 and Royal, 1985), because they are really outstanding, they correspond exactly to the research topic and no previous literature review include them. Ten studies are reviewed here, in four different dialects: Egyptian Arabic: Harrell (1957), Royal (1985), Norlin (1987), and Wahba (1996); Palestinian Arabic: Davis (1995) and Shahin (1996 & 1997); Yemeni Arabic: Watson (1995 & 1999); and Jordanian Arabic: Zawaydeh (1998).

II.3.a. The Cairene and Alexandrian Dialects: Phonemics

In an outstanding research on the Egyptian colloquial Arabic, Harrell (1957) has isolated seven different contexts for vowels in Egyptian Arabic, and in each context, the vowels surface in many allophones, in the presence of an emphatic consonant. Generally, emphasized vowels show a lower F2: High front vowels are centralized, high back vowels are lowered, and low vowels are backed. Harrell gives the following list for the emphatic consonants that trigger emphasis : The primary emphatics [ṣ, ḍ, ṭ, ẓ] and the uvular [q], when it is pronounced the "classical" way, not as a mere glottal stop [ʔ].

15

The minimum range of emphasis is a function of the entire syllable.[6] It is impossible to say whether emphasis is triggered by the vowels or by the consonants. Native speakers usually attribute emphasis to consonants. It is however safer to consider that emphasis is a feature of the whole syllable. Emphasis is a gradient feature: It is not an on/off phenomenon. It is also a stylistic and a socio-cultural feature: Speakers emphasize differently according to their gender, conversation context, intended effect on the listener. Emphasis is acoustically easy to recognize, however this phenomenon affects the phonemes differently according to their nature.

After presenting in detail the emphatic phonemes, those which trigger emphasis and those which do not, Harrell (1957) considers that it is more economical to consider that there are no emphatic phonemes at all in Egyptian Arabic and that emphasis is a prosodic feature (like accent, or intonation) that may co-occur at the syllable level with any phoneme.

II.3.b. The Cairene and Alexandrian Dialects: Socio-Linguistics

This extreme point of view is more or less shared by Royal (1985), and this is partly due to her socio-cultural perspective. She studied the socio-cultural aspect of pharyngealization in the Cairene Arabic dialect. She measured the frequency displacement of [iː]'s F2 transition adjacent to a primary emphatic consonant [ṣ, ḍ, ṭ, ẓ], where the tongue goes from the most backed position to the most fronted one.

---

[6] This can be noted as follows: [VÇ, V:Ç, ÇV or ÇV:] where [V] notes a vowel, long or short, [Ç] notes any primary emphatic consonant or a [q].

She found out that Heliopolitans (a high-class district) mark the speaker's sex with their strength of pharyngealization. Men display a stronger pharyngealization than women, regardless of other variables. Both men and women in Heliopolis tend to reduce pharyngealization when addressing male and female strangers.

In al-Gamaliyyah (a low-class district), on the other hand, speakers accommodate pharyngealization to the perceived speech norm of the listener, which Heliopolitans do not do. Secondly, whereas younger Gamaliyans tend to adopt the Heliopolitan pattern for pharyngealization (signaling the speaker's sex), older Gamaliyans do not show significant difference in pharyngealization according to the speaker's sex.

Royal (1985) concludes from her study that, like intonation and accent, strength of pharyngealization is a prosodic feature. It seems to function as a gender marker in Heliopolis, and younger Gamaliyans begin to acquire this pattern. Men enhance pharyngealization whereas women disguise it. One enhances their pharyngealization by a shorter consonant duration resulting in an early vowel onset, and a greater audible F2 transition. On the contrary, one disguises their pharyngealization by delaying the vowel onset (aspiration), thus reducing the audible F2 transition.

This study focuses only on primary emphatics, and it lacks a comparison with their plain counterparts. Is there a clear audible difference between them? Could a female's weak pharyngealized consonant be compared to a male's plain consonant? Moreover, the author has chosen not to include education as a variable, and to only focus on the economic level. Are these variables interchangeable?

Wahba (1996) has also chosen the socio-linguistic approach to the phenomenon of emphasis. He has studied the Alexandrian dialect. He made the hypothesis that educated speakers would conform with the higher emphasis of Modern Standard Arabic (MSA) whereas uneducated speakers would display a lesser degree of emphasis. This expectation was based on the prejudice that MSA is a prestige variety among educated people. He also expected women to produce a lesser degree of emphasis than men.

Degree of emphasis was empirically measured on a scale from 1 to 3, "1" corresponding to the backed realization of the low vowel /a/ occurring after the four underlying primary emphatics in colloquial /ṣ, ṭ, ḍ, ọ/; "2" corresponding to the central realization of /a/ and "3" to the fronted realization of the same vowel.

Contrary to the author's expectations, educated speakers did not conform to the MSA emphasis degree, meaning that MSA does not work as a prestige attraction pole. Rather, the dialect seems to have its own prestige scale, independent from MSA. Thus, emphasis works in the Alexandrian dialect a both a gender marker and an education marker (low emphasis sounds more feminine and more educated).

II.3.c. The Cairene Dialect: Acoustics

In an outstanding review, Norlin (1987) studies the emphasis in the Cairene dialect in an acoustic perspective: How different are the emphatic vowels from their plain counterparts? First, through a spectrogram measure, he shows that the only consonant is not enough to distinguish between a plain sibilant and its emphatic counterpart. It is thus the following vowel that can give a clue on the emphasis of the consonant.

The quality of the vowels, plain and emphatic, is then measured. The five long plain vowels [aː, uː, iː, eː, oː] are phonetically well separated, except for long [iː] and [eː] that slightly overlap. The plain short [i] and [e] completely overlap, as almost do [o] and [u]. When comparing the emphatic vowels with their plain counterparts, one discovers that there is a considerable overlapping between [iː] and [ïː], between [uː] and [ʉː], between [oː] and [ɵː] and between [eː] and [ɵː], [aː] and [ɐː] being the most different ones.

Then, through a computer-assisted simulation of the modeling of the vocal tract, Norlin testes the best model that would describe emphasis. He comes up with the conclusion that emphasis is better described as pharyngealization rather than velarization, in the Cairene dialect. However, the pharynx plays no active role in emphatic articulation: The pharyngeal constriction comes from a backward movement of the tongue against the pharynx.

On the phonological level, the author applies his findings about vowel quality and formant transition to Egyptian Arabic vowels. Whereas [e] and [o] are always the result of a morphological shortening process of [eː] and [oː], and never contrast with them (thus being better interpreted as allophones of /eː/ and /oː/), the author proposes to interpret [aː] and [ɐː] as two different phonemes /aː/ and /ạː/, thus assigning six phonemic long vowels to Egyptian Arabic /aː, ạː, uː, iː, eː, oː/. He roots this interpretation in both the phonetic level (the clear separation between [aː] and [ạː]) and a phonological analysis (the fact that both vowels are found in free distribution before and after the same non-emphatic consonants). Instead of putting emphasis down to the consonants— and thus splitting almost all consonants into two phonemes, one plain and

19

one emphatic—he suggests to put emphasis down to the phonemic back vowel /aː/ and its allophones. Harrell (1957) had pointed out this difficulty to assign a phonemic status to a large number of consonants. Norlin proposes here an elegant solution, which violates however the native feeling that consonants determine emphasis, not vowels. Another limit to this research is that it relies on elicited speech only, not natural speech.

II.3.d. The Palestinian Dialects: Emphatic Spread

The studies on Palestinian dialects have all focused on the emphatic spread, which was not the case for the studies on Egyptian Arabic. Davis (1995), for example, aims at shedding a new light on the emphasis spread in two Palestinian Arabic dialects which behave differently: The extent of the spread and the nature of the opaque phonemes that block this spread differ from one dialect to the other.

In the southern Palestinian dialect, the leftward spread is unrestricted whereas the rightward spread of emphasis is blocked by the phonemes /i, j, ʃ, g/ that act as a natural [+high] [-back] class.

In the northern Palestinian dialect, the leftward spread is unconditioned (with the exception of the inflectional prefixes that optionally block it). The rightward spread is more complicated: There seem to be two different and incompatible processes. The first process is that emphasis spreads rightwards as far as the syllable nucleus, and that the phonemes /ʃ, j, w, i, u/ block this rightward emphatic spread; the second process is that a pharyngealized low vowel pharyngealizes all of laryngeal consonants, pharyngeal consonants and low vowels, rightwards and leftwards. There is a conflict between the two processes for which a traditional analysis cannot account, because it describes

phonemes in a binary way (+ or – back, + or – pharyngealized...) whereas some phonemes are neither + nor – back, + or – pharyngealized. The Grounded Phonology (a theory that the author explains in introduction) enables the author to describe phonemes in a non-dualistic way that accounts for their phonologic behavior.

In other studies of the Palestinian dialects, Shahin (1996 & 1997) makes a point showing that there are two different kinds of emphatic spread in Palestinian Arabic: Pharyngealization and uvularization. She calls uvularization harmony (tongue-back retraction, lowered F2) what other authors usually call "emphasis spread". As for pharyngealization harmony (tongue-root retraction, raised F1), it has not been studied, except by the author herself. These two different harmonies form together the emphasis which makes a whole segment postvelar.

Pharyngealization harmony is triggered both by postvelar consonants (emphatics /ð̣, ṣ, ṭ, ɾ̣, ḳ/ and gutturals /ʔ, h, ʕ, ħ, χ, ʁ/) and closed-syllable-pharyngealized vowels. No consonant blocks the harmony. All short vowels in the word are affected, except if they sit at the right edge (at the end of the word or at the end of the root). Long vowels do not undergo the pharyngealization harmony.

Uvularization harmony is triggered by the secondarily uvularized consonants (the emphatics) /ð̣, ṣ, ṭ, ɾ̣, ḳ/ and not by the primary uvulars /χ, ʁ/; only low vowels (short and long) are backed; all nonpostvelar consonants also uvularize. Only /ʃ/ and non-root-internal geminate /jj/ block uvularization harmony.[7]

---

[7] In a personal communication, the author told me that uvularization spreads both rightwards and leftwards, unless it is blocked rightwards or leftwards by /ʃ/ or /jj/.

21

II.3.e. The Dialect of Ṣanʿāʾ: Prolabialization

Watson (1995) analyses emphasis in Ṣanʿānī Arabic in order to find a phonological representation that would account for the natural co-occurrence of pharyngealization, velarization and prolabialization. The implied hypothesis is that pharyngealization, velarization and prolabialization co-occur as *one* secondary articulation which the author calls "flatness".

Prolabialization of short high vowels (/i/ realizes as [u]) spreads rightwards from the primary emphatics (and leftwards to a lesser extent) within the phonological word. In some words, /ʕ and ʁ/ behave as primary emphatics and trigger prolabialization.

Prolabialization even happens as a *secondary* articulation with the labials /m and b/ in certain contexts, not only as a tertiary articulation. In these cases, there is a co-occurrence of two secondary articulations: Pharyngealization/velarization *and* prolabialization. Prolabialization is thus a feature of the entire phonological word, it is weak before the emphatics and strong after.

The three distinct articulatory phenomena (pharyngealization, velarization and prolabialization) have this in common that they all involve an expansion of the volume of the mouth and a peripheral constriction (lips, velar and pharynx). The author proposes to interpret this *one* phenomenon as "flatness", as opposed to "sharpness", which correspond to the classical Arabic terminology muṭabbaq "covered, spread" and muraqqaq "thin, delicate".

In another research, Watson (1999) compares data from Ṣanʿānī Arabic and from the rural Palestinian dialect studied by Davis (1995), because they share similarities in the type of emphatic spread.

The asymmetrical behavior of emphasis in Palestinian Arabic and in Ṣanʿānī Arabic is hypothesized not only to have phonological explanations, but phonetic (physiological) explanations as well.

Ṣanʿānī Arabic shows a twofold emphasis phenomenon: Pharyngealization and labialization. Both phenomena behave differently: Whereas pharyngealization spreads leftwards and is blocked by no phoneme (the author says that rightward pharyngealization spread needs further study), labialization spreads mainly rightwards from the emphatic consonant (including /r/ in some cases) onto the high short vowel (/i/ surfaces as [u]) and seems to be blocked by the pharyngeal consonants. In some cases, labialization may affect long vowels (in the IInd verbal noun with a /ṣ/ in the root, /iː/ can surface as [uː]; and phonological-word-final /aː/ surfaces as [oː] if the root contains an emphatic).

The difference in spread directionality can be accounted for by phonetic reasons. In pharyngealization, the pharynx narrows during the onset phase of the consonant, so that the vocal tract "prepares" pharyngealization as soon as the beginning of the word. In the case of labialization, the lip protrusion occurs during and after the hold phase and thus tends to spread rightwards after the release phase. In Palestinian Arabic, the same kind of phonetic explanation can better account for the difference in spread direction than a phonological rule.

II.3.f. The Dialect of 'Ammān: Uvulars

Zawaydeh (1998) has studied the effect of both uvulars consonants (primary uvulars) /q, χ, ʁ/ and uvularized segments (secondary uvulars) /ṭ, ḍ, ṣ, ḏ̣/ on the following low vowels /a, aː/.

There seem to be no blocker to rightward uvularization spread in Ammani-Jordanian Arabic. In one context though, the fall in F2 for /aː/ varies a lot between the 5 recordings of the same token /tafḍiːlaːt/. More research would be needed to confirm that uvularization of the feminine plural long vowel /aː/ is optional.

The author wants then to explore the phonetic nature of /χ, ʁ/ which are uvulars in classical Arabic. The F2 value for /aː/ after /χ, ʁ/ is significantly higher than for /a/ after /q/. This confirms the fact that /χ, ʁ/ are realized as velars in Ammani-Jordanian Arabic, respectively [x, ɣ]. More research would be needed to confirm this.

Lastly, the author makes the hypothesis that uvularization spreads differently from /q/ than from the secondary uvularized /ṭ, ḍ, ṣ, ḏ̣/, and indeed, after /i, uː, j/, in words containing /q/, the F2 value is slightly higher than after /ʃ/ and dramatically higher than after /w/. The low vowel in the second syllable after /q/ shows a higher F2 value than the low vowel in the syllable containing /q/. Uvularization effect after the secondary uvularized consonants /ṭ, ḍ, ṣ, ḏ̣/ is stronger than after /q/. In the latter case, uvularization spreads mainly on the first low vowel and, to a lesser extent, on the second syllable. High non-consonantal segments /i, uː, j/ block rightward uvularization spread after /q/, whereas there is a slight rightward uvularization spread effect across /ʃ/ and a strong rightward uvularization spread effect across /w/.

The major limit to this study is that there was only one informant, the researcher herself, and that only elicited speech was analyzed. This seriously limits the representativeness of the study, although it is very suggestive.

II.4. Discussion Section of the Literature Review

II.4.a. Comparison Between Tajwīd and Fuṣḥá al-ʿAṣr

The emphatics are the same in both varieties, they include the four primary emphatics: /ṣ, ḍ, ṭ, ð̣/ and the uvular: /q/. These emphatics trigger the emphasis of the adjacent vowels, rightwards only in tajwīd and in both directions in fuṣḥá al-ʿaṣr. In tajwīd, all non-emphatics are blockers, whereas in fuṣḥá al-ʿaṣr, [+high] vowels block emphasis spread. In tajwīd, the domain of emphasis is the syllable, whereas in fuṣḥá al-ʿaṣr, emphasis can eventually spread to the whole word.

This brief survey shows that emphasis in tajwīd is a more limited phenomenon than in fuṣḥá al-ʿaṣr, where it becomes a suprasegmental feature (a feature which applies to more than a segment: A syllable, a word, or more). There are two problematic phonemes, /r/ and /l/, for which the rules are either very detailed (in tajwīd) or doubtful (in fuṣḥá al-ʿaṣr).

II.4.b. The Arabic Dialects

Socio-linguistics: Two authors have a socio-linguistic approach (Royal, 1985 & Wahba, 1996) whereas the others have a phonetic/phonological approach. From a socio-linguistic perspective, it seems granted that emphasis is a gradient feature (and not an

on/off phenomenon) and a prosodic feature (like accent and intonation). This means that emphasis is a feature that speakers activate more or less according to the intended effect on the listener (social gender, social class, education, age).

Acoustics: On an acoustic point of view, emphasis is more easily attributed to the vowels than to the consonant (Norlin, 1987) and all but one[8] authors focus on the acoustic value of the vowels rather than the consonants. Emphasis has too major acoustic effects on vowels: A lowered F2 and a raised F1. According to the nature of the vowels, both phenomena have a varied influence (low vowels cannot be further lowered, and back vowels cannot be further backed for example). One author (Shahin, 1996 & 1997) makes a point in distinguishing two separate phenomena: Uvularization (lowered F2) and pharyngealization (raised F1). Others prefer to describe emphasis as one phenomenon, with varied effects on the vowels. Harrel (1957) is the only one to consider the syllable context: He distinguishes seven different contexts for syllable, with each time a specific effect on the vowels.

Phonetics: On the phonetic point of view, some authors focus on the emphasis spread (Davis, 1995; Shahin, 1996 & 1997, Zawaydeh, 1998 and Watson, 1999). These authors try to discover what are the triggers, the direction of spread, the undergoers, the non-undergoers and the blockers of emphasis, according to the dialects. There are some contradictions between their analyses, and they try to resolve them either through the Grounded Theory (Davis, 1995; Watson, 1999), through a distinction between two

---

[8] Zawaydeh (1998) tries to solve the apparent discrepancies in emphasis through an acoustic analysis of the uvulars /q, χ, ʁ/.

separate phenomena, pharyngealization and uvularization (Shahin, 1996 & 1997), or through a renewed acoustic analysis of the uvular consonants /q, χ, ʁ/ (Zawaydeh, 1998).

Phonology: On the phonological point of view, it is impossible to conciliate the authors. Harrell (1957) considers that emphasis is a mere prosodic feature and that there is no emphatic phoneme as such.[9] Norlin (1987) considers that it is more economical to put emphasis down to a phonemic low long vowel /aː/.[10] Davis (1995), Shahin (1996 & 1997), Zawaydeh (1998) and Watson (1999) have a more traditional approach: They consider that there is a set of consonant phonemes that trigger emphasis. This set of phonemes varies according to the dialects and to the authors. They belong to the following classes:[11] The primary emphatics /ṣ, ṭ, ḍ, ð̣/, the independent secondary emphatics /ṛ, ḳ/,[12] the uvulars /χ, ʁ, q/, the pharyngeals /ʕ, ħ/ and the glottals /ʔ, h/. Authors disagree on the list of phonemes that trigger emphasis. As for the uvulars, it seems that some dialects realize /χ, ʁ/ as velars [x, ɣ] and that these velars may trigger emphasis (Davis, 1995) or not (Zawaydeh, 1998).

---

[9] It is not clear however if Harrell denies a phonemic status to the primary emphatics as well.

[10] Norlin says nothing about the status of the short emphatic [ɐ]: Is it an allophone of his phonemic /ɐː/ or an allophone of the non-emphatic /a/?

[11] Not all dialects have all these phonemes, nor all the authors considers these phonemes as emphasis triggers. This list includes all phonemes proposed by the authors. See the summary of each study for a detail account of emphasis triggering phonemes.

[12] In Palestinian, /ḳ/ corresponds to the classical /q/. The status of the independent secondary emphatics is still unclear, because of the lack of clear minimal pairs. Harrell's (1957) list included: /ṛ, ḷ, ḳ, ḅ, ṃ/ before he changed his mind in his research and finally decided that there was no phonemic emphatics at all in Cairene Arabic.

Limits: A main limit to most of these studies is that they rely on elicited speech (Harrell, 1957; Norlin, 1987; Shahin, 1997; Zawaydeh,; 1998), rather than natural speech. In some cases, this point is not even stated (Davis, 1995; Watson, 1995 & 1999; Shahin 1996). Only Royal (1985) and Wahba (1996) explicitly state that their data come from natural speech. This could be a real problem for analysis, since the informants focus more on the sounds in elicited speech than they would do in natural speech.

II.5. Some of the Possible Applications for Future Research

These studies were not all focused on the Cairene dialect. They allow us to have a more complete vision on all the possible phenomena at stake. However, not all these phenomena are effective in the Cairene dialect. Only three studies out of ten focus on Cairene Arabic (Harrell, 1957; Royal, 1985; Norlin, 1987). Here are the findings that apply to future research in this dialect:

1) To manipulate the socio-linguistic variables: The issue of emphasis has a large socio-linguistic base. Some authors even describe it as a mere socio-linguistic issue, not a phonological one (Harrell, 1957; Royal, 1985). Hence, a further study must manipulate socio-linguistic variables in order to be meaningful (gender, social class, education, age, contact with foreigners, trips abroad, mastering of other languages, attitude to the language, religion...) Not all these variables have been studied so far. When teaching Cairene Arabic, the teachers should also bear this in mind so that they choose a proper socio-linguistic variety of the language for the students to learn. In most cases, the teachers want the students to sound like educated males and females, and not like

uneducated non gender-marked persons. But many points still have to be discussed (mastering of other languages, attitude to the Arabic language, and religion in particular).

2) To link acoustics with TAFL: Acoustically, emphasis has been well documented in Cairene Arabic (Harrell, 1957; Royal, 1985; Norlin, 1987). However, since languages are not static, it could be interesting to compare updated data with these studies. One question remains open: It is efficient when it comes to teaching Arabic to foreigners to distinguish between uvularization (lowered F2), pharyngealization (raised F1), prolabialization (if this exists in Cairene Arabic), or should the teacher give a more unified vision of these phenomena (Watson, 1995) and how?

3) To study emphasis in the Cairene dialect: Phonetically, no study on Cairene Arabic has focused on the direction of spread, the undergoers, and the blockers of emphasis. The studies reviewed simply assume that emphasis spreads both rightwards and leftwards, that all short and long vowels undergo emphasis and that there are no blockers. Of course, all these phenomena should be studied in Cairene Arabic. Another interesting phenomenon lies in the phonetic realization of the uvulars /q, χ, ʁ/. Does /q/ trigger the same emphasis than the primary emphatics? Do /χ/ and /ʁ/ realize as velars [x, ɣ] in Cairene Arabic? Do they trigger emphasis? (Compare with Palestinian Arabic in Davis (1995) and Zawaydeh (1998)). Lastly, Zawaydeh (1998) suggests that in Jordanian Arabic, the feminine plural ending /-aːt/ may or may not be velarized, a point that has not been studied yet in Cairene Arabic.

4) To establish the phonological classes of consonants in the Cairene dialect: A phonological study of the Cairene Arabic dialect should try to determine anew what are

the consonant classes in the Cairene dialect (Harrell, 1957): The primary emphatics, the independent secondary emphatics; as well as discuss the phonological nature of the vowels (Norlin, 1987). All these issues have a great importance in the field of teaching Arabic as a foreign language.

In the second part of this thesis, the focus will be on the phonetic dimension of emphasis in the Cairene dialect (triggers, spread, undergoers, and blockers), in order to try and explicit the phonetic rules that account for emphasis.

CHAPTER III. EMPHASIS IN THE CAIRENE EDUCATED DIALECT

III.1. Introduction of the Study

As was presented in the first part of this research, any research in the field of emphasis in Arabic has to take the socio-linguistic dimension into consideration. This include many factors such as gender, social class, education, age, contact with foreigners, trips abroad, mastering of other languages, attitude to the language, religion... There are two ways of integrating these factors: Either the researchers split their sample according to these factors— which would lead to a very large sample, since *each* sub-category has to be representative— or to control these factors by choosing *one* sub-category, which will be the option in the present study.

When it comes to teaching a language to non-natives, the teachers have to choose a standard. They cannot teach all the varieties at once, it would be underproductive and misleading for the students. Rather— and especially at the lower levels— the teachers have to choose one variety and stick to it, so that the students receive a coherent input which they can use. The case of Arabic dialects is very interesting, because of their great variety, from one dialect to another, and within the same dialect. Thus, the teachers have to make a deliberate choice: Which variety of the language has to be taught to the students? Among Badawī's (1973) five levels of Arabic, it seems to be more efficient to choose the level called 'ammiyyat al-muthaqqafīn "Dialect of the Educated Persons". Another study would be necessary to establish this point. For the sake of the present research, it will be assumed that the students need to learn this

particular level of Cairene Arabic, due to their social status as foreigners, to the kind of contexts where they will need to speak and understand Arabic. Of course, in a perfect world, they would need— and especially at the higher levels of proficiency— to be able to speak and understand more than this level of Arabic, as native Cairenes would. But once more, this alone is a subject for a thesis on its own. Thus, the level that will be chosen here is the one called 'ammiyyat al-muthaqqafīn "Dialect of the Educated Persons", and this will be the standard variety to be taught to AFL students.

Badawī defines this level of the language as both the most colloquial version of the classical language and the most classical version of the colloquial (p. 148). Like the other levels, it is also defined according to the specific contexts where it should be used (discussions about politics, art, culture in general) as well as to specific levels of education and culture of the speaker (p.150). Badawī adds that in Egypt, the adjoining upper level of the language (fuṣḥá al-'aṣr "Contemporary Classical Arabic") is not used in spoken conversation. This usage is transferred to 'ammiyyat al-muthaqqafīn (p. 150). It will be assumed in this research that it is relevant to study only this level of the language, spoken by educated people in the particular context of a talk-show on politics, thus controlling other socio-linguistics variables and meeting AFL students needs and expectations.

Once that this is assumed, one needs to study the special pattern of emphasis in this level of Cairene Arabic, in order to define phonetic rules that can then be taught. In the second part of this work, a corpus of educated Cairene Arabic will be chosen, and the pattern of emphasis in it will be analyzed, with a special light on the triggers, the undergoers, the spread, and the blockers of emphasis. There will be a special attention for

some problematic points that have been discussed in the literature for other dialects, such as the uvulars /q, χ, ʁ/, the pharyngeals /ʕ, ħ/, the /r/, and the feminine plural ending morpho-phoneme /-a:t/.

III.2. Methodology of the Study

III.2.a. The Corpus

The corpus consists in seven episodes of the television program al-Ḥaqīqah "The Truth" which is a political talk-show directed by the journalist Wā'il al-Ibrāshī. It is broadcasted on the Egyptian satellite NileSat, channel Dream 2, on Saturdays at 8:00 p.m. (episodes are broadcasted again on the next day, on Sundays, at 4 p.m.) The episodes of al-Ḥaqīqah will be noted 1, 2, 3... See the detail of the episodes' date and topic in Appendix A. In some cases, the episodes are split in two parts on the DVDs. Both parts will be noted 1ᵃ, 1ᵇ, 2ᵃ...

It seems that at the beginning of each episode, the journalist is reading his text. Since other pronunciation rules may apply to reading, the first minutes of each episode will systematically be excluded. See in Appendix B the detail of the audio tracks in minutes and seconds.

III.2.b. The Informants

Each episode of al-Ḥaqīqah gathers an average of four guests, plus the journalist, so that the corpus gathers more than twenty different informants. These informants will be referred to with the capital letters A, B, C... (Appendix C).

The following informants were consistently speaking in a "lower" variety of colloquial, namely 'ammiyyat al-mutanawwirīn "Enlightened Colloquial", as described by Badawī (1973, p. 91 & 175-189). This variety is not the one that is studied here, thus, these informants were not taken into account, although they took part in the TV program. These informants are G, I, J , K, L, M, N, O, R, S, Z, AA, AB, and AC (14 informants). Lastly, one informant was consistently speaking using the adjoining "higher" variety of the language, namely fuṣħá al-'aṣr "contemporary classical Arabic", as described by Badawī (1973, p. 90 & 127-148). This informant (AI) is a religious scholar from al-Azhar University. He was not included in the study, because the rules for emphasis are different in this variety of the language.

Here is the list of the 22 informants taken into account in this research: A, B, C, D, E, F, H, P, Q, T, U, V, W, X, Y, AD, AE, AF, AG, AH, AJ, AK and AL. Informant A (the anchorman) is present in all the episodes. Only two informants (B and N) were present in more than one episode. All the other ones appear only once.

It is difficult to assert the educational level of these 23 informants, since one can only rely on the position that was theirs at the time the episodes were recorded. However, one can safely assume that they have all studied at the level of the Master at the university. Among them, there are journalists, lawyers, vice-ministers, members of the People's Assembly, boat captains, international experts, deans, physicians...

III.2.c. The Notation System

The following notation D1^b(07:48)[bara:ʔa] "innocence" means "the word [bara:ʔa], meaning 'innocence' pronounced by the informant D, in the second part of the

first episode, after 7 minutes and 48 seconds." Moreover, according to the Appendices, this first episode was broadcasted on Saturday, March 4th, 2006, at 8 p.m., that its topic was the political prisons in Egypt and that informant D is Majdī al-Basyūnī, former vice-minister of the interior.

III.2.d. The Design of the Study

The methodology used here consists in checking off the occurrences of the problematic contexts for emphasis, as they were described in the literature. A list that collects words containing the problematic contexts has been established. Since it was impossible to be exhaustive, these lists gather samples from all episodes, in as many possible phonetic environments as possible. In the end, seven lists of words have been established, one for each of the following phonemes and morpho-phonemes: /q, r, ʁ, χ, ʕ, ħ, -aːt/. All the phonemes have been tagged as [+emphatic] or [–emphatic]. In order to do so, the research had to rely on a subjective perception, rather than on acoustic measures because, as it has been presented in the literature review, emphasis is a complex phonetic phenomenon in Arabic, that implies more than one factor: The three acoustic formants F1, F2 and F3, play a role, as do the preceding and following phonemes. Moreover, as some studies have shown, emphasis varies from one informant to another. Some informants will have a general low tone, which individual sounds could be compared with other informants' emphasized sounds, whereas others have a general higher tone. However, the hypothesis here is that for the one same informant, there is a difference between emphasized and non-emphasized sounds, but the scale where each informant speaks varies from one to another. This is another way to say that emphasis is

a prosodic feature: It is there, in all the informants speech, but each one of them has their own scale, just like intonation, and accent.

For the sake of this research, the emphasis scale has been simplified to [+emphatic] and [−emphatic], although research has consistently shown that emphasis is a gradient phenomenon, not an on/off phenomenon. This is linked with the pedagogical aim, which is to teach emphasis efficiently to AFL students. In some cases, it was difficult to decide whereas a particular segment was emphasized or not, and in these cases, these segments could well be described as emphatically "neutral". These segments have been labeled as [−emphatic], thus focusing on the clearly [+emphatic] segments, that will then be taught to the students.

III.3. The Results of the Study

III.3.a. The Phoneme /q/ and its Realization

The phoneme /q/ has two distinct realizations in educated Cairene Arabic: [q] and [ʔ]. Whereas the informant decides to pronounce /q/ as [q] or as[ʔ] is beyond this research. Basically, [q] is more classical and [ʔ] more colloquial. Here is a list of occurrences where /q/ surfaces as non-emphasized [ʔ]:

- A1[a](02:35)[ħalʔa] "episode".
- B1[b](05:23)[taʔdiːm] "presentation".
- C1[a](05:44)[ʔaːl] "he said".
- E1[a](10:08)[baʔuːl] "I say".
- F2[a](04:36)[ħaʔiːʔa] "truth".
- Q3(24:27)[ʔoddaːmak] "in front of you".
- U4(28:02)[bejʔuːl] "he says".

- W4(37:34) [ʕoʔda] "knot".
- A4(38:03)[ʔabl] "before".
- Y5(03:56)[ʔalbuh] "his heart".
- X5(11:31)[muwafʔet] "agreement".
- A5(42:15)[naʔl] "transportation".
- AL7(19:34)[ʔalʔa:na] "stressed".

However, /q/ can surface as an emphasized [ʔ] when emphasis is present within the word and has spread from another emphatic phoneme, as in the following examples:

- C1[b](11:30)[ʔaṭṭaʕt] "you cut", where the emphasis of /ṭ/ has spread to the whole word.
- F2[b](06:05)[laʔṭa] "snapshot", where the emphasis of /ṭ/ has spread to the whole word.
- H2[b](10:34)[ʔubṭa:n] "captain", where the emphasis of /ṭ/ has spread to the whole word.
- V4(43:52)[ʔaṭabbaʔuh] "I apply it", where the emphasis of /ṭ/ has spread to the whole word.
- A6(19:11)[ʔaḍejja] "case", where the emphasis of /ḍ/ has spread to the whole word.
- AG6(39:11)[noʔṭa] "point", where the emphasis of /ṭ/ has spread to the whole word.
- AL7(16:49)[ṭari:ʔa] "means", where the emphasis of /ṭ/ has spread to the whole word.

When /q/ surfaces as [q], it triggers emphasis, and this emphasis spreads unlimited to the left, as in the following examples where /q/ is the last segment of the word:

- B1[b](06:36)[taʕli:q] "commentary".
- C1[a](12:30)[juḥaqqiq] "he realizes".
- A2[a](05:08)[wa:θeq] "confident".
- H2[a](18:22)[taḥqi:q] "investigation".
- A2[b](20:38)[tataʕallaq] "she depends".
- A3(05:48)[taḥqi:q] "investigation".
- U4(08:20)[tauriq] "she sinks".
- T4(18:30)[farq] "difference".
- A4(23:56)[tuʕalliq] "you comment".
- T4(33:41)[mutaʕalliq] "related to".

- A5(20:18)[tuwa:fiq] "you agree".
- AH6(22:32)[fira:q] "Iraq".
- AH6(31:51)[hari:q] "fire".

In the following cases, [q] is not the last segment of the word. Everything preceding [q] is still emphasized, including the syllable beginning by [q], as in the following examples:

- B1ᵃ(02:58)[iftiqa:l] "detention".
- F2ᵃ(05:20)[haqi:qa] "truth".
- A2ᵇ(17:18)[faqi:qat] "sister".
- A3(05:27)[sa:biqa] "preceding".
- Q3(24:58)[ʔinqa:z] "rescue".
- A4(32:06)[qatl] "killing".
- A5(15:36)[naqi:b] "chairman of a corporation".

In the following cases, [q] is not in the last syllable. Everything preceding [q] is emphasized, including the syllable beginning by [q], however the spread is blocked by the following syllable, as if the vocal tract was preparing itself from the beginning of the word, but goes back to an non-emphatic pattern for the next syllable. This is true whatever be the nature of the first consonant of the following syllable. In all cases, this syllable blocks the emphatic spread:

- D1ᵃ(15:30)[faqla:ni] "rational" (/l/, lateral, blocks the rightward emphasis of /q/).
- E1ᵃ(23:13)[qija:d] "leadership" (/j/, glide, blocks the rightward emphasis of /q/).
- C1ᵇ(06:16)[ʔiqtiħa:m] "intrusion" (/t/, alveodental stop, blocks the rightward emphasis of /q/).
- C1ᵇ(14:47)[jeqneʕu:ha] "they convince her" (/n/, nasal stop, blocks the rightward emphasis of /q/).
- F2ᵃ(09:13)[mafqu:di:n] "lost" (/d/, alveodental stop, blocks the rightward emphasis of /q/).

- A2ᵃ(09:28)[qaddamt] "you presented" (/d/, alveodental stop, blocks the rightward emphasis of /q/).
- H2ᵃ(20:03)[ʔaqwaːl] "sayings" (/w/, glide, blocks the rightward emphasis of /q/).
- F2ᵇ(06:21)[waːqiʕa] "incident" (/ʕ/, guttural fricative, blocks the rightward emphasis of /q/).
- U4(08:40)[qaːʔima] "list" (/ʔ/, laryngeal stop, blocks the rightward emphasis of /q/).
- V4(22:07)[waqiʕijjiːn] "realistic" (/ʕ/, guttural fricative, blocks the rightward emphasis of /q/).
- AH6(10:13)[qissiːs] "priest" (/s/, alveaolar fricative, blocks the rightward emphasis of /q/).

Of course, this block does not apply if there is another emphasis trigger, which spreads emphasis till the end of the word, as in the following examples:

- C1ᵃ(06:23)[dimuqraṭejja] "democracy", where emphasis is triggered by /ṭ/.
- B1ᵇ(09:18)[quṣuːr] "incapability", where emphasis is triggered by /ṣ/.
- F2ᵃ(05:53)[ʔiltaqaṭet] "she collected", where emphasis is triggered by /ṭ/.
- F2ᵇ(05:56)[laqaṭaːt] "snapshots", where emphasis is triggered by /ṭ/.
- T4(02:31)[qararaːt] "decisions", where emphasis is triggered by /r/.
- U4(11:40)[qudra] "ability", where emphasis is triggered by /r/.
- AD5(16:42)[mutaṭabqa] "coordinated", where emphasis is triggered by /ṭ/.
- A5(18:40)[qiṣṣatak] "your story", where emphasis is triggered by /ṣ/.
- AE6(12:20)[ʔaqbaːṭ] "Copts", where emphasis is triggered by /ṭ/.

Here is a summary of the emphasis rules for /q/:

Rule # 1: When /q/ is realized phonetically as [ʔ], it does not trigger emphasis at all. However, it may undergo emphasis under the influence of an emphasis-triggering phoneme(/ṣ, ṭ, ḍ, ð̣/ or an emphatic [r] according to its specific rules).

Rule # 2: When /q/ is realized phonetically as [q], as it is the case in fuṣḥá al-ʻaṣr (MSA) and fuṣḥá al-turāth,

a) it triggers an emphasis which influence begins at the beginning of the word and stops immediately after the end of the syllable where /q/ is present.

b) If there is another source for emphasis in the word (/ṣ, ṭ, ḍ, ọ̈/ or an emphatic [ṛ] according to its specific rules), then nothing blocks the emphasis, and it spreads through all the syllables.

III.3.b. The Phoneme /r/ and its Realization

As a general rule, /r/ realizes as emphatic and triggers an emphasis that spreads to the whole word in a [−front] context (depending on the vowels before and after /r/). However, there are some limitation to this phenomenon as well as a few doubtful cases, that will be presented below. As for the emphasis of /r/ in tajwīd, the rules for the emphasis of /r/ in ʻammiyyat al-muthaqqafīn are far from simple. For this reason, it was difficult to rely only on the recorded corpus, because some particular phonetic contexts were not found. In some limited cases, a few words have been taken from Badawī's *Dictionary of Egyptian Arabic*, which notes the difference between plain and emphatic /a/. These words will be labeled "Badawī".

When there is one of the following phonemes /ṣ, ṭ, ḍ, ọ̈, q/ in the word, /r/ always surfaces as an emphatic [ṛ] as in:

- B1ᵃ(03:14)[ṭawaːṛiʔ] "emergency", the emphasis of /ṭ/ has spread to the whole word.
- C1ᵃ(13:06)[faṛḍ] "duty", the emphasis of /ḍ/ has spread to the whole word.
- C1ᵃ(19:35)[muqaddiṛ] "estimator", the emphasis of /q/ has spread to the whole word.
- D1ᵇ(08:20)[ṣaːdiṛ] "published", the emphasis of /ṣ/ has spread to the whole word.
- P3(30:16)[ẓuṛuːf] "circumstances", the emphasis of /ọ̈/ has spread to the whole word.
- T4(01:43)[ṛaṣiːf] "pier", the emphasis of /ṣ/ has spread to the whole word.

- X5(12:22)[mɑrɪːḍ] "sick", the emphasis of /ḍ/ has spread to the whole word.
- AL7(10:57)[ʔɑrḍ] "earth", the emphasis of /ḍ/ has spread to the whole word.

If the following vowel is [+front] such as /i, iː, e, or eː/, and there is no other source for emphasis in the word, then /r/ surfaces as non-emphatic, as in the following:

- C1ᵃ(11:23)[taʕrif] "you know".
- A1ᵃ(12:44)[taʃriʕaːt] "legislations".
- B1ᵇ(04:52)[ʕafariːt] "demons".
- F2ᵃ(06:09)[gariːdat] "newspaper".
- Q3(24:17)[gariːma] "crime".
- T4(23:02)[kawaːris] "disasters".
- W4(36:34)[waːred] "arriving".

If the preceding vowel is /i, iː, e, or eː/, /r/ is not followed by a vowel, and there is no other source of emphasis in the word, then /r/ surfaces as non-emphatic, as in the following examples:

- E1ᵃ(09:55)[maʕajiːr] "criteria".
- D1ᵃ(15:29)[ʁeːr] "un-".
- D1ᵃ(19:18)[bernaːmig] "program".
- P3(26:45)[ʁerʔet] "she sank".
- P3(29:49)[tergaʕ] "you return".
- P3(29:59)[ʔistamerr] "go on".
- U4(05:03)[tastanker] "you disapprove".
- AH6(10:27)[jutaːger] "he does business".
- AE6(12:48)[kilometr] "kilometer".
- AJ7(30:48)[jankir] "he denies".
- AK7(37:52)[tubaːʃir] "it is exercised".

If the word has already undergone a phonological change (a /q/ that is realized phonetically as a [ʔ], a /ð/ that surfaces as a [z], a /θ/ that surfaces as a [s]) then the

emphasis of /r/ is blocked, whatever its near context. It seems that it is impossible to apply two phonetic changes in one word (glottalization of /q/, alveolarization of /ð/ and /θ/, *and* emphasis of the /r/), as in the following:

- E1ª(10:36)[farʔ] "difference", phonologically /farq/.
- F2ª(05:59)[ʁardaʔa] "Hurghada", phonologically /ʁardaqa/.
- U4(09:28)[rɐzzaza:t] "sprinkler", phonologically /raððaða:t/.
- U4(18:10)[rɐmmasa:t] "rafts", phonologically /rammaθa:t /.[13]
- V4(42:15)[waraʔ] "paper", phonologically /waraq/.
- AH6(22:26)[ʕira:ʔ] "Iraq", phonologically /ʕira:q/.
- AH6(28:07)[ʔitħaraʔ] "it was burnt", phonologically /itħaraq/.
- T4(30:30)[karsa] "disaster", phonologically /karθa/.

If /r/ comes *after* the modified phoneme, then its emphasis is not blocked, but spreads to the whole word. See for example the following:

- AH6(13:47)[tɐzkɐrɐ] "ticket", phonologically /taðkara/.
- Badawī[zɐkɐr] "to mention", phonologically /ðakar/.
- Badawī[sɐrr] "to leak out", phonologically /θarr/.
- Badawī[tɐmɐr] "to bear fruit", phonologically /θamar/.
- Badawī[ʔɐrɐ] "to read", phonologically /qara/.
- Badawī[ʔɐmɐr] "moon", phonologically /qamar/.

If /r/ is followed by a [–front] vowel (/a, a:, u, u:, o, o:/), then it is realized as emphatic, as in the following examples: (Different contexts are specified)

Context: [+front] vowel + Non-emphatic consonant + /r/ + [–front] vowel = /iCra/
- E1ª(10:23)[ʔifrɐ:g] "release".
- U4(05:30)[ʔifrɐ:f] "supervision".

---

[13] This phenomenon does not apply in "lower" varieties of the language. One informant who is consistently speaking in a "lower" variety— and who is not taken into account in this study— pronounces [rɐmmɐ:s] "raft" and [rɐmmɐsɐ:t] "rafts". (J2ᵇ(00:37) and (29:58) respectively.)

- F2[b](08:42)[ʔigraːmi] "criminal".
- AK7(34:33)[ʔisraʔiːl] "Israel".

Context: [–front] vowel + Non-emphatic consonant + /r/ + [–front] vowel = /aCra/
- AH6(16:19)[nafrah] "we explain".
- AE6(12:09)[muʔamra] "conspiracy".
- AH6(11:04)[maʕruːf] "known".
- Badawī[ʔadraːg] "drawers".
- Badawī[ʔadrak] "to realize".

Context: [+front] vowel + /r/ + [–front] vowel = /ira/
- U4(29:38)[ʔiħtiraːs] "prudence".
- AE6(15:48)[qiraːʔa] "reading".
- AJ7(33:12)[siraːʕ] "conflict".

Context: [–front] vowel + /r/ + [–front] vowel = /ara/
- AG6(35:27)[muħarram] "Muḥarram" (place name).
- P3(29:11)[ʕimaːra] "building".
- P3(30:10)[qaraːr] "decision".
- AH6(10:22)[nataħarrak] "we move".
- AH6(11:10)[ʔfraːd] "persons".

Context: No phoneme + /r/ + [–front] vowel = /Øra/
- B1[a](04:24)[raɣm] "despite".
- F2[a](06:01)[raːbeʔ] "fourth".
- U4(09:29)[raʃʃaʃaːt] "sprinklers".

If /r/ is at the end of the word and is preceded by a [–front] vowel (/a, aː, u, uː, o, oː/) then it is realized as emphatic, as in the following:

Context: Non-emphatic consonant + [–front] vowel +/rØ/ = /CarØ/
- Q3(26:05)[baʃar] "human being".
- W4(35:47)[ʔaħmar] "red".
- W4(36:46)[ʔaːxar] "other".
- AG6(35:53)[naʃar] "he spread".

43

- AL7(11:00)[beʃɑr] "humanity".
- X5(12:19)[hɑjwɑffɑr] "he will spare".
- B1ᵇ(05:26)[miʃjaːr] "criterion".

In monosyllabic words containing a [–front] vowel, /r/ is also realized as an emphatic, as in the following cases:

Context: monosyllabic words with [–front] vowel = /arCØ/ and /aCrØ/
- B1ᵃ(03:51)[bɒrg] "tower".
- B1ᵃ(17:57)[fɑrd] "individual"
- P3(30:26)[bɑħr] "ocean".
- E1ᵃ(10:07)[ʔɑmr] "order".
- Badawī[dɒrk] "depths".

The last possible case is when /r/ is followed by a consonant, preceded by a [–front] vowel (/a, aː, u, uː, o, oː/) and is not in a monosyllabic word. In this case, there is a lot of variation, and the phonetic nature of the following consonant does not seem to play a role, nor the number of syllables, nor the place of the stress in the word— noted here with a prime on the vowel, as in the following:

Context: [–front] vowel + /r/ + non-emphatic consonant /arC/
- T4(01:57)[ʔɑr / wɑ́ːħ] "souls", /w/ is a labiovelar glide.
- AE6(15:26)[jur / ħɑ́ / mu] "they are taken in compassion", /ħ/ is a pharyngeal fricative.
- F2ᵃ(12:33)[ʔɑr / bɑ́ / ʕɑ] "four", /b/ is a labial stop.
- B1ᵃ(18:11)[ʔar / ba / ʕíːn] "fourty", /ʕ/ is a labial stop.
- E1ᵃ(23:11)[xár/ ga] "coming out", /g/ is a velar stop.
- F2ᵇ(06:38)[ʕar / fíːn] "knowing", /f/ is labiodental fricative.
- Q3(30:50)[már / keb] "boat", /k/ is a velar stop.
- Badawī[dar / da / ʃa] "conversation", /d/ is an alveodental stop.

This variation is not free, because no informant would pronounce these words once as emphatic and once as non-emphatic. It is rather a lexicalized variation, meaning

44

that for these words, emphasis is part of the lexical information. It seems to be the case also for a few words, that do not comply with the rules, like the following:

- U4(05:19)[rukka:b] "passengers".
- U4(16:30)[ra:kib] "passenger".
- AE6(25:32)[madrastuh] "his school".

In these cases, according to the previous rules, these words should have been emphasized, i.e. there is no reason for the emphasis of /r/ to be blocked. It is interesting here to see that the two first words are of the same root: [rukka:b] "passengers" and [ra:kib] "passenger", and that some words of the same root as the last one [madrastuh] "his school" are also de-emphasized:

- Badawī[dars] "lesson".
- Badawī[daras] "to study".

For this reason, it is plausible that for a few roots, a specific characteristic "non-emphatic" be part of the lexical information. This assumption is only true for the phoneme /r/, and may have many possible explanations (geographical, historical, etymological...) which a further study could focus on.

Since in tajwīd there was a specific rule for the emphasis of /r/ before /j/, it was important to check this although the corpus did not contain occurrences with the sequence /rj/. In these cases, /r/ does not trigger emphasis, as in the following:

- Badawī[ʔarja:f] "country".
- Badawī[marjala] "apron".
- Badawī[garja] "female slave".
- Badawī[ʕarja:n] "naked".

Lastly, there is an interesting case where there is a conflict between two rules. Compare for example the following:

- A7(11:27)[quɾʔaːn] "Qur'ān" and AL7(10:16)[quɾʔɑːn] "Qur'ān".

In this case, there is a conflict between the emphasis rule for /q/ saying that the emphatic spread is blocked by the first syllable after the syllable containing /q/, and the emphasis rule for /r/ saying that if /r/ is preceded by a [–front] vowel and not followed by a vowel, then it is emphatic and its emphasis spreads to the whole word. According to the emphasis rule for /q/ # 2-a, one would expect [quɾʔaːn] and according to the emphasis rule for /r/ # 5, one would expect [quɾʔɑːn].

Here is a summary of these rules for the emphasis of /r/:

Rule # 3: When there is an emphatic phoneme in the word (/ṣ, ṭ, ḍ, ḍ̣/ or an emphatic [ɑ] according to its specific rules), /r/ always surfaces as emphatic.

Rule # 4: If the following vowel is [+front] (/i, iː, e, or eː/), and there is no other source for emphasis in the word, then /r/ surfaces as non-emphatic.

Rule # 5: If the following vowel is [–front] (/a, aː, u, uː, o, oː/), then /r/ triggers an emphasis that spreads to the whole word.

Rule # 6: If /r/ is not followed by a vowel:

a) if the word is monosyllabic and contains a [–front] vowel (/a, aː, u, uː, o, oː/), /r/ is emphatic and its emphasis spreads to the whole word.

b) if the preceding vowel is [+front] /i, i:, e, or e:/, and there is no other source of emphasis in the word, then /r/ surfaces as non-emphatic.

c) if the preceding vowel is [–front] (/a, a:, u, u:, o, o:/) and the word is not monosyllabic:

        c-1) if /r/ is at the end of the word, it triggers an emphasis that spreads to the whole word.

        c-2) if /r/ is followed by /j/ it does not trigger emphasis.

        c-3) if /r/ is not at the end of the word, and is followed by a consonant other than /j/, no rule seem to apply.

Rule # 7: If the word has already undergone a phonological change (/q/→[ʔ], /ð/→[z], /θ/→[s, t]):

a) if /r/ come *after* the modified phoneme, then the rules above apply.

b) if /r/ comes *before* the modified phoneme, then it is not emphatic, whatever the immediate context.

These rules can be presented in the same kind of chart as previously for the emphasis of /r/ in tajwīd. They apply, provided that the emphasis rule for /r/ # 7 is not violated (the presence of a phonetically modified phoneme in the word).

/r/	The word contains /ṣ, ḍ, ṭ, ọ/ or [q]	Before /i, i:, e, e:/ (and absence of emphasized phoneme)	Before /a, a:, u, u:, o, o:/	Before a /j/	Before another consonant (and absence of emphasized phoneme)	At the pause (and absence of emphasized phoneme)
After /i, i:, e, e:/	[ṛ]	[r]	[ṛ]	[r]	[r]	[r]
After /a, a:, u, u:, o, o:/	[ṛ]	[r]	[ṛ]	[r]	*Doubtful if not monosyllabic word.*	[ṛ]
After /aC, uC, oC/	[ṛ]	[r]	[ṛ]	✕	✕	[ṛ]
After /iC, eC/	[ṛ]	[r]	[ṛ]	✕	✕	[r]

Chart 2: The emphasis rule for /r/ in 'ammiyyat al-muthaqqafin "Dialect of the Educated Persons".

Comparing this chart with the chart of emphasis for /r/ in tajwīd, the following remarks can be made:

a) The general principle is the same in both charts: The emphasis of /r/ depends first on the following vowel, then— in the absence of a following vowel— on the preceding vowel.

b) The main difference is that in the educated Cairene dialect, emphasis is a function of the whole word, not the syllable. Thus, the presence of an emphasis-trigger sound (/ṣ, ḍ, ṭ, ọ, and q/) anywhere in the word will emphasize the whole word (or at

least the first syllables, in the case of /q/ which is the only phoneme that triggers an emphasis limited to the right). The list of the emphasis-triggers is larger in tajwīd (/ṣ, ḍ, ṭ, ḏ̣, q, χ, ʁ/) but their effect is limited to the first vowel to the right only.

c) The sequence /rj/ blocks the emphasis of /r/ in all cases in the educated Arabic dialect, whereas this was doubtful in tajwīd (partly due to a lack of data). This is consistent with the fact that a following [+front] vowel blocks the emphasis of /r/.

d) Another important difference between the two systems is that /r/ behaves differently in a [–front] context when immediately followed by a consonant (except /j/). In these cases, emphasis is not predictable in the Cairene educated dialect. This is maybe due to the fact that the emphasis triggered by /r/ spreads to the whole word, so that it changes all the segments in the word. When /r/ is not followed by a vowel, it is not always "strong" enough to emphasize the whole word. More study need to be done on this specific point.

e) Non-stem /i/ and stem /i/ behave alike in the educated Cairene dialect.

f) No specific rule apply to /r/ in the neighborhood of /ð and θ/, since their interdental feature is preserved in tajwīd, as well as the uvular feature of /q/.

III.3.c. The Phoneme /ʁ/ and its Realization

The phoneme /ʁ/ does not trigger emphasis, and seems to be pronounced in these cases as a velar [ɣ] but more specific study should be done to assess this fact. Here are examples of non-emphasized realizations of /ʁ/:

- B1ᵃ(03:01)[tastaʁna] "she renounces".

49

- C1ᵃ(20:17)[muba:leʁ] "exaggerating".
- H2ᵃ(10:35)[bejeʃʁel] "he makes someone work".
- F2ᵇ(06:20)[ballaʁt] "I notified".
- A3(05:35)[benʁa:li] "Bengali".
- P3(26:45)[ʁerʔet] "she sank".
- A4(00:51)[ʔiʁtazalt] "you summed up".
- W4(36:46)[li-ʁa:jet] "until".
- Y5(03:54)[ʁa:wi] "fond".
- A5(25:08)[bala:ʁ] "report".
- A6(09:11)[luʁz] "puzzle".
- A6(11:47)[mulaʁʁama] "mined".

If the word contains a phoneme that triggers emphasis such as /ṣ, ṭ, ḍ, ẓ̣, r and q/, then /ʁ/ undergoes emphasis, just as all the other phonemes in the word, as in:

- A1ᵃ(02:31)[ʁɑːḍeban] "angry", where emphasis is triggered by /ḍ/.
- B1ᵃ(04:24)[rɑʁm] "despite", where emphasis is triggered by /r/ ([–front] context).
- C1ᵃ(08:03)[juʁliq] "he closes", where emphasis is triggered by /q/.
- B1ᵃ(18:37)[ʁɑlṭɑ] "error", where emphasis is triggered by /ṭ/.
- F2ᵃ(04:55)[ʁumuːḍ] "obscurity", where emphasis is triggered by /ḍ/.
- F2ᵃ(05:26)[ʁurfet] "room", where emphasis is triggered by /r/ ([–front] context).
- U4(12:54)[ʁɑlṭɑːn] "wrong", where emphasis is triggered by /ṭ/.
- U4(19:00)[tɑʁriq] "she sinks", where emphasis is triggered by /q/.
- A4(24:48)[ḍɑʁṭ] "pression", where emphasis is triggered by both /ḍ/ and /ṭ/.
- A7(36:53)[ʔɑʁlɑqɑ] "he closed", where emphasis is triggered by /q/.

The expression /li-ʁa:jat-/ "until" is interesting, because there seem to be free variation in its emphasis. Here /ʁ/ realizes as emphatic although there is no emphatic phoneme in the word:

- D1ᵇ(09:00)[li-ʁɑːjeṭ] "until".
- F2ᵃ(09:05)[li-ʁɑːjeṭ] "until".
- compare with W4(36:46)[li-ʁa:jet] "until", where there is no emphasis.

50

Another interesting case is the preposition /ʁajr/ "un-" which can be realized in two ways: According to the rule of fuṣħá al-turāth "Heritage Classical Arabic" which states that /ʁ/ triggers emphasis, or according to the "lower" varieties, in which /ʁ/ does not trigger emphasis. However, it is interesting to see that even though, the emphasis rules for /r/ are not broken. In a [–front] context in a monosyllabic word, /r/ triggers an emphasis that spreads to the whole word, and in a [+front] context it does not:

- C1ᵃ(08:15)[ʁajr] "un-", where emphasis is triggered by /r/ ([–front] context).
- Q3(25:37)[ʁe:r] "un-", where /r/ does not trigger emphasis ([+front] context),

The rule for the emphasis of /ʁ/ can be stated as follows:

Rule # 8: Unlike in classical Arabic, /ʁ/ is a non-emphatic phoneme in educated Cairene and it does not trigger emphasis. However, it may undergo emphasis under the influence of an emphasis-triggering phoneme (/ṣ, ṭ, ḍ, ð̣/ or an emphasized [q, r] according to their specific rules).

Rule # 9: There is one exception to Rule # 8: [li-ʁa:jet] "until" where some free variation seems to happen (regional variation?)

Rule # 10: When speakers use MSA, the preposition /ʁajr/ "un-" is pronounced emphatically [ʁajr], as it goes in fuṣħá al-ʿaṣr (MSA) and fuṣħá al-turāth.

III.3.d. The Phoneme /χ/ and its Realization

The same kind of analysis that was made for /ʁ/ can be made for the phoneme /χ/. The phoneme /χ/ does not trigger emphasis, and seems to be pronounced in these

cases as a velar [x] but more specific study should be done to assess this fact. Here are

examples of non-emphasized realizations of /χ/:

- B1ª(03:13)[istiχda:m] "usage".
- C1ª(08:18)[χa:rig] "outside", where /r/ does not trigger emphasis ([+front] context),
- E1ª(13:52)[χa:ni?] "strangling".
- A2ª(04:18)[?iχfa:?] "hiding".
- P3(29:17)[χafi:fa] "light".
- T4(01:37)[?a:χir] "last", where /r/ does not trigger emphasis ([+front] context),
- U4(19:00)[juχa:lif] "he contradicts".
- A6(09:22)[muχtalli:n] "unstable".

If the word contains a phoneme that triggers emphasis such as /ṣ, ṭ, ḍ, ḏ̣, r and

q/, then /χ/ undergoes emphasis, just as all the other phonemes in the word, as in:

- A1ª(04:00)[muχaṣṣaṣa] "specialized", where emphasis is triggered by /ṣ/.
- B1ª(06:37)[χuru:g] "exit", where emphasis is triggered by /r/ ([–front] context).
- A2ª(10:07)[?iχtiṭa:f] "kidnapping", where emphasis is triggered by /ṭ/.
- F2ª(11:06)[χaṣṣatan] "especially", where emphasis is triggered by /ṣ/.
- Q3(24:35)[ba:χira] "steamer", where emphasis is triggered by /r/ ([–front] context).
- T4(02:55)[ʃaχṣ] "person", where emphasis is triggered by /ṣ/.
- U4(09:43)[?aχta:r] "I choose", where emphasis is triggered by /r/ ([–front] context).
- W4(36:46)[?a:χar] "other", where emphasis is triggered by /r/ ([–front] context).
- A5(08:52)[χabaṭak] "he hit you", where emphasis is triggered by /ṭ/.
- X5(12:30)[χarag] "he left", where emphasis is triggered by /r/ ([–front] context).
- A6(39:03)[muχaṭṭaṭ] "planned", where emphasis is triggered by /ṭ/.
- A7(12:10)[mulaχχaṣ] "summarized", where emphasis is triggered by /ṣ/.

As for the preposition /ʁajr/ "un-", in some case the adjective /χajr/ "good"

can be realized according to the rule of fuṣḥá al-turāth "Heritage Classical Arabic" which

states that /χ/ triggers emphasis. It is interesting to see that even though, the rules for

the emphasis of /r/ are not broken: In a [–front] context in a monosyllabic word, /r/ triggers an emphasis that spreads to the whole word, and in a [+front] context it does not:

- C1ᵃ(12:56)[xɐjɾu] "good", where emphasis is triggered by /r/ ([–front] context).

Rule # 11: Unlike in classical Arabic, /χ/ is a non-emphatic phoneme in educated Cairene and it does not trigger emphasis. However, it may undergo emphasis under the influence of an emphasis-triggering phoneme (/ṣ, ṭ, ḍ, ọ̈/ or an emphasized [q, ɾ] according to their specific rules).

Rule # 12: When speakers use MSA, the adjective /χajr/ "good" is pronounced emphatically [xɐjɾ], as it goes in fuṣḥá al-'aṣr (MSA) and fuṣḥá al-turāth.

III.3.e. The Phonemes /ʕ/ and /ħ/ and Their Realization

These two phonemes always surface as non-emphatic, in the absence of any other emphasis-trigger /ṣ, ṭ, ḍ, ọ̈, r or q/ as in the following, for /ħ/:

- B1ᵃ(03:21)[ħaːl] "situation".
- C1ᵃ(05:44)[ħadiːs] "talk".
- E1ᵃ(13:36)[ʔeħna] "we".
- B1ᵃ(17:25)[muħaːmi] "lawyer".
- F2ᵃ(05:01)[ħajaːtuh] "his life".
- P3(29:27)[ʔistiħaːl] "impossibility".
- A4(00:47)[ħizb] "party".
- U4(05:56)[tasmaħ] "she allows".
- A5(45:25)[gaħiːm] "hell".
- AG6(38:00)[ħadas] "it happened".

Here are examples of emphasized realizations of /ħ/, in the presence of an emphasis trigger:

- C1ᵇ(06:21)[marħala] "stage", where emphasis is triggered by /r/ ([–front] context).
- C1ᵇ(06:08)[tataħaffaẓ] "she preserves", where emphasis is triggered by /ð̣/.
- B1ᵇ(06:55)[ħalqa] "episode", where emphasis is triggered by /q/.
- F2ᵃ(05:20)[ħaqi:qa] "truth", where emphasis is triggered by /q/.
- F2ᵃ(07:32)[maṣlaħa] "interest", where emphasis is triggered by /ṣ/.
- F2ᵃ(12:16)[ṣaħi:ħ] "true", where emphasis is triggered by /ṣ/.
- A3(05:48)[taħqi:q] "investigation", where emphasis is triggered by /q/.
- T4(01:57)[ʔarwa:ħ] "souls", where emphasis is triggered by /r/ ([–front] context).
- T4(03:47)[ʔabħarat] "she departed", where emphasis is triggered by /r/ ([–front] context).
- AD6ᵇ(31:51)[ħari:q] "fire", where emphasis is triggered by /q/.

And here is a list of non-emphatic occurrences for the phoneme /ʕ/:

- B1ᵃ(03:25)[naʕi:ʃuha] "we live it".
- C1ᵃ(06:33)[taʕawwadna] "we got accustomed".
- C1ᵃ(07:22)[ʕaks] "opposite".
- C1ᵃ(11:26)[ʕa:m] "year".
- F2ᵃ(05:04)[maʕna] "meaning".
- H2ᵃ(11:39)[maʕlu:ma] "information".
- H2ᵇ(11:21)[juʕa:ni] "he suffers".
- Q3(23:38)[ʕa:rif] "knowing".
- Q3(25:40)[ʕa:lam] "world".
- P3(29:34)[ʕa:di] "ordinary".
- U4(05:12)[jamnaʕ] "he forbids".
- U4(09:55)[ballaʕa] "drain".
- X5(07:33)[ʕa:jez] "wanting".
- AH6(11:10)[ʕa:lag] "he cured".
- AL7(06:26)[ʕa:m] "year".

Here are examples of emphasized realizations of /ʕ/, in the presence of an emphasis trigger:

- C1ᵇ(05:57)[ʔiṭṭiloːʕ] "seeing", where emphasis is triggered by /ṭ/.
- A2ᵃ(04:18)[ʔaʕḍaːʔ] "members", where emphasis is triggered by /ḍ/.
- F2ᵃ(06:01)[raːbeʕ] "fourth", where emphasis is triggered by /r/.
- F2ᵃ(07:37)[ʕabbaːra] "ferry", where emphasis is triggered by /r/.
- U4(12:34)[teṭalleʕ] "you take out", where emphasis is triggered by /ṭ/.
- T4(18:18)[ṭuʕṭi] "you give", where emphasis is triggered by /ṭ/.
- A4(23:56)[tuʕalliq] "you comment", where emphasis is triggered by /q/.

The rule for the emphasis of /ʕ/ and /ħ/ can be formulated as follows:

Rule # 13: In the educated Cairene Arabic dialect /ʕ/ and /ħ/ are non-emphatic phonemes and they do not trigger emphasis. However, they may undergo emphasis under the influence of an emphasis-triggering phoneme (/ṣ, ṭ, ḍ, ḍ̣/ or an emphatic [q, r] according to their specific rules). In fuṣħá al-ʕaṣr (MSA) and fuṣħá al-turāth, these phonemes trigger labialization (Badawi, 1973) but not emphasis.

This rule agrees with the analysis of Badawī (1973) who described /ʕ/ and /ħ/ as labialization triggers in fuṣħá al-turāth only, saying that they lost this labialization feature in the "lower" levels. However, it contradicts Harrell (1957) who described these two phonemes as emphasis-triggers in colloquial Arabic.

III.3.f. The Morpho-Phoneme /–aːt/ and its Realization

The morpho-phoneme /–aːt/ acts as if it were part of the word and it does not block emphasis. In the following cases, emphasis spreads to the whole word from one emphasis-trigger located in the first syllables:

- A1ᵃ(02:46)[munɑzzˤɑ / mɑːt] "organizations", where emphasis is triggered by /ðˤ/.
- C1ᵃ(06:16)[dˤɑmɑ / nɑːt] "warranties", where emphasis is triggered by /dˤ/.
- E1ᵃ(09:50)[ħuru / mɑːt] "taboos", where emphasis is triggered by /r/.
- F2ᵃ(04:41)[ʔiχtˤitˤɑ / fɑːt] "kidnappings", where emphasis is triggered by /tˤ/.
- A4(04:16)[tɑsˤri / ħɑːt] "statements", where emphasis is triggered by /sˤ/.
- U4(09:29)[rɑʃʃɑ / ʃɑːt] "sprinklers", where emphasis is triggered by /r/.
- V4(39:06)[ʔigrɑ / ʔɑːt] "procedures", where emphasis is triggered by /r/.
- A5(30:05)[ʔisˤɑ / bɑːt] "wounds", where emphasis is triggered by /sˤ/.
- AH6(13:38)[dɑrɑ / gɑːt] "degrees", where emphasis is triggered by /r/.
- AL7(13:55)[tɑʕɑsˤsˤu / bɑːt] "fanaticisms", where emphasis is triggered by /sˤ/.

In the following cases, the emphasis-trigger is located in the last syllable, containing the morpho-phoneme /-aːt/. Even in these cases, emphasis not only spreads to the last syllable but to the whole word:

- C1ᵃ(05:36)[muχɑddi / rɑːt] "drugs", where emphasis is triggered by /r/ ([-front] context).
- F2ᵃ(11:10)[ʕɑlɑ / qɑːt] "relations", where emphasis is triggered by /q/.
- U4(09:06)[tɑħqi / qɑːt] "investigations", where emphasis is triggered by /q/.
- AH6(10:41)[nɑʃɑ / rɑːt] "publications", where emphasis is triggered by /r/.
- A7(19:50)[mulɑħɑ / ðˤɑːt] "observations", where emphasis is triggered by /ðˤ/.

In the case of the word /muχaddir/, it is interesting to note that this word was not emphatic before the addition of the morpho-phoneme /-aːt/ because /r/ was is an [+front] context. This shows that the addition of the morpho-phoneme /-aːt/ builds one single new word that is not felt to be made of two distinct morphemes.

In the following cases, there is no emphatic trigger in the word and no phoneme is emphasized:

- C1ᵃ(06:59)[baɾbaɾanaːt] "parrots".

- D1ᵃ(16:20)[iʒʁala:t] "occupations".
- E1ᵃ(23:50)[maʕluma:t] "informations".
- B1ᵇ(07:12)[ħala:t] "situations".
- C1ᵇ(11:38)[balaʁa:t] "reports".
- A1ᵇ(13:58)[ʔiħtigaga:t] "protestations".
- F2ᵃ(05:35)[bajana:t] "reports".
- F2ᵃ(11:12)[tashila:t] "facilitations".
- Q3(25:07)[xazzana:t] "tanks".
- Q3(25:17)[ʕawwama:t] "floaters".
- A4(10:01)[ballaʕa:t] "drains".
- A5(09:57)[balaʁa:t] "exaggerations".
- A5(40:06)[mustanada:t] "documents".
- X5(46:53)[tagawuza:t] "impunities".

There is an interesting conflicts in rules, where the word contains the phoneme /q/ in the penultimate syllable. One informant pronounces the word with an emphasis that spreads onto the /–a:t/ whereas the other informants do not emphasize the /–a:t/:

- [mu͟ʕta / q͟ɑ / l͟ɑ:t] "detention camps": A1ᵃ(04:01), A1ᵃ(04:57), A1ᵃ(05:01)
- [mu͟ʕta / q͟ɑ / la:t] "detention camps": B1ᵃ(03:39), B1ᵃ(04:22), D1ᵃ(15:43), B1ᵃ(17:12), C1ᵃ(21:36), C1ᵃ(21:39), E1ᵃ(22:24), C1ᵇ(06:16)
- [i͟ʕtiq͟ɑ / la:t] "detentions": B1ᵃ(06:40)

There is thus a personal variation, since only informant A spreads emphasis from /q/ onto the final /–a:t/. This confirms the general rule that says that the /q/ emphasis is blocked by the following syllable, although there could be some free variation. This variation could be explained by the conflict between two different rules: The emphasis rule for /q/ (emphasis is blocked by the first syllable after /q/) and the emphasis rule for /–a:t/ (the phoneme /–a:t/ takes the emphasis of the last phoneme of the word).

Thus, the general rule for the emphasis of the morpho-phoneme /–a:t/ can be stated as follows:

Rule # 14: The morpho-phoneme /–a:t/, feminine plural marker, does not block the emphasis spread throughout the whole word, even if the emphasis-trigger is the last phoneme of the phonological word. In some cases, the word may be not emphatic before the addition of /–a:t/ and emphatic after (this can happen in some cases if the last consonant of the word is /r/).

III.3.g. Additional Findings: Other Morpho-Phonemes

III.3.g.1. Compounds with /–ta:ʃar/ "-teen" : The morpho-phoneme /–ta:ʃar/ "-teen", used in forming numbers from 11 to 19, is always emphasized, according to the rule for the emphasis of /r/ # 6-c-1. However, this emphasis does not spread to the whole word : If the first part of the word contains an /i/, then this first part is not emphasized, as in:

- A1ᵃ(14:52)[sit / taːʃar] "sixteen".
- U4(18:02)[tisaʕ / taːʃar] "nineteen".

If the first part of the whole word does not contain an /i/, then this first part is emphasized, as in:

- P3(29:20)[xamas / taːʃar] "fifteen".
- U4(18:00)[sabaʕ / taːʃar] "seventeen".
- AL7(41:01)[taman / taːʃar] "eighteen".

Rule # 15: The emphasis of the last /r/ in the morpho-phoneme /–ta:ʃar/ "-teen" (used to form numbers from 11 to 19) does not spread to the first part of words compounds of /–ta:ʃar/ if this first part contain an /i/.

III.3.g.2. The adverbial marker /–an/: This morpho-phoneme takes the same emphasis as the word. If the word was emphatic before the addition of /–an/ then it surfaces as [–ɑn] as in:

- C1ᵃ(10:58)[fɑwɾ – ɑn] "immediately".
- F2ᵃ(08:02)[qɑtˤʕ – ɑn] "definitely".
- F2ᵃ(18:51)[tˤɑbʕ – ɑn] "of course".
- A2ᵃ(22:25)[ʔɑjḍ – ɑn] "also".
- A3(26:29)[wifq – ɑn] "according".
- P3(26:57)[sˤɑbɑːħ – ɑn] "in the morning".
- U4(04:49)[ʔitˤlɑq – ɑn] "absolutely".
- T4(17:46)[tˤibq – ɑn] "according".
- V4(32:27)[mubɑʃɑrɑt – ɑn] "directly".
- A5(41:10)[musbɑq – ɑn] "previously".
- AH6(09:30)[mutˤlɑq – ɑn] "absolutely".
- A6(34:25)[ʔintˤilɑːq – ɑn] "starting".
- AG6(36:02)[ħɑqiqɑt – ɑn] "truly".

If the word was not emphatic before the addition of /–an/, then this morpho-phoneme surfaces as [–an], even after a /r/ where it should become emphatic, as in:

- C1ᵃ(11:25)[ʔaχiːr – an] "lastly".
- A7(15:53)[luʁz – an] "puzzle".

Rule # 16: The morpho-phoneme /–an/, which marks the indefinite accusative nunation, adapts to the word to which it is added, keeping the emphasis of the last syllable as it was.

III.3.g.3. The feminine *nisba* marker /–ijja–/: This morpho-phoneme blocks the emphasis of the word, in all cases. See the examples with both emphasized and non-emphasized words:

- B1ª(04:35)[χaja/ lej / ja] "imaginary".
- C1ª(05:11)[daχi / lej / ja] "interior".
- A6(09:14)[ʕɑq / lej / jan] "intellectually". /l/ had already blocked the emphatic spread, according to the rule for the emphasis of /q/ # 2a.
- AL7(06:12)[baha / ʔej / ja] "Bahāʔī".
- AL7(11:04)[baʃa / rej / ja] "humanity".
- AL7(11:56)[tari: / χej/ jan] "historically".
- A7(15:53)[maχ / fej / jan] "hidden".
- A7(20:15)[ʕɑqɑʔi / dej / ja] "related to beliefs". /ʔ/ had already blocked the emphatic spread, according to the rule for the emphasis of /q/ # 2a.

Since the morpho-phoneme /–ijja–/ is made up of two syllables, the first syllable /–ij–/ may form a syllable with the last consonant of the word. In this case, this syllable alone could be emphasized, but not the second syllable of the morpho-phoneme /–ja–/, as in:

- F2ª(07:58)[ħɑqi / qej / ja] "true".
- T4(02:27)[ṣɑlɑ / ħej / ja:t] "validity dates".
- U4(04:38)[ʃɑχ / ṣej / jan] "personally".
- AL7(07:12)[ʕirɑ / qej / ja] "Iraqi".

Rule # 17: The two-syllable morpho-phoneme /–ijja–/, the feminine *nisba* marker, blocks emphasis by splitting in two. The first syllable is eventually emphasized according to the emphasis rules of the word, but the second syllable is never emphasized. There were too few data in the corpus to decide for the emphasis of the masculine *nisba* marker /–ijj–/.

III.3.g.4. The suffix pronoun /–ka/ "your": This pronoun can be realized as [–ka] and [–ak], the first one reflecting a "higher" variety of the language. Both forms of the suffix pronoun block the emphatic spread, as in the following emphatic and non-emphatic contexts:

- C1ᵃ(10:48)[ʔuzakkir – ak] "I remind you".
- C1ᵇ(05:50)[maʕa – ka] "with you".
- C1ᵇ(11:22)[ħasi:b – ak] "I will leave you".
- D1ᵃ(18:35)[ħasebteha:l – ak] "I counted it for you".
- A2a(04:11)[min – ka] "from you".
- T4(20:54)[safint – ak] "your boat".
- A1ᵃ(05:05)[taʕqi:b – ak] "your comment". /b/ had already blocked the emphatic spread, according to the rule for the emphasis of /q/ # 2a.
- B1ᵃ(17:06)[ħaḍret – ak] "you".
- B1ᵃ(18:24)[ħaḍret – ak] "you".
- F2ᵃ(12:19)[mantequ – ka] "your logic".
- H2ᵃ(20:10)[ħaḍret – ak] "you".
- W4(43:17)[ʔarakkeb – ak] "I have you ride".

The only case when the suffix pronoun /–ka/ "your" does not block emphasis, is when the word finishes with a consonant, this consonant is the emphatic trigger, and the informant has chosen the "lower" version of the pronoun [–ak]. In these cases, the

pronoun realizes as emphatic. However, the corpus contained too few tokens of this type, as in:

- A5(08:52)[x̶a̶b̶a̶ṭ – ak] "he hit you", where emphasis is triggered by /ṭ/.

Rule # 18: The morpho-phoneme /–ka/ "your (masculine singular)", attached pronoun suffix, can be realized in a "high" or "low" version of the language: [–ka] (the two fuṣḥá levels) and [–ak] (the three 'ammiyya levels).

a) The "high" realization [–ka] always blocks emphasis.

b) The "low" realization [–ak] blocks emphasis, unless the last consonant of the word is the emphasis-trigger itself. In these cases, the phoneme surfaces as [–a̶k̶].

CONCLUSION

At the end of this study, 18 phonetic rules have been deduced from the corpus, that describe the phenomenon of emphasis in the Cairene educated Arabic dialect. It has been assumed, on the base of the previous studies, that the phonemes /ṣ, ṭ, ḍ, ọ̈/ trigger an emphasis that spreads unlimited to the right and to the left within the limits of the word. As for the phonemes and morpho-phonemes studied here, /r, q, χ, ʁ, ʕ, ħ, –a:t, –ta:ʃar, –an, –ijja–, –ka/, their emphasis rules list as follows:

Rule # 1: When /q/ is realized phonetically as [ʔ], it does not trigger emphasis at all. However, it may undergo emphasis under the influence of an emphasis-triggering phoneme (/ṣ, ṭ, ḍ, ọ̈/ or an emphatic [r] according to its specific rules).

Rule # 2: When /q/ is realized phonetically as [q], as it is the case in fuṣḥá al-'aṣr (MSA) and fuṣḥá al-turāth,

    a) it triggers an emphasis which influence begins at the beginning of the word and stops immediately after the end of the syllable where /q/ is present.

    b) if there is another source for emphasis in the word (/ṣ, ṭ, ḍ, ọ̈/ or an emphatic [r] according to its specific rules), then nothing blocks the emphasis, and it spreads through all the syllables.

Rule # 3: When there is an emphatic phoneme in the word (/ṣ, ṭ, ḍ, ọ̈/ or an emphatic [q] according to its specific rules), /r/ always surfaces as emphatic.

Rule # 4: If the vowel following /r/ is [+front] (/i, i:, e, or e:/), and there is no other source for emphasis in the word, then /r/ surfaces as non-emphatic.

Rule # 5: If the vowel following /r/ is [–front] (/a, aː, u, uː, o, oː/), then /r/ triggers an emphasis that spreads to the whole word.

Rule # 6: If /r/ is not followed by a vowel:

a) if the word is monosyllabic and contains a [–front] vowel (/a, aː, u, uː, o, oː/), /r/ is emphatic and its emphasis spreads to the whole word.

b) if the preceding vowel is [+front] /i, iː, e, or eː/, and there is no other source of emphasis in the word, then /r/ surfaces as non-emphatic.

c) if the preceding vowel is [–front] (/a, aː, u, uː, o, oː/) and the word is not monosyllabic:

c-1) if /r/ is at the end of the word, it triggers an emphasis that spreads to the whole word. A special rule applies to /r/ in the morpho-phoneme /–taːʃar/ "-teen" (used to form numbers from 11 to 19). See rule # 15 below.

c-2) if /r/ is followed by /j/ it does not trigger emphasis.

c-3) if /r/ is not at the end of the word, and is followed by a consonant other than /j/, no rule seem to apply.

Rule # 7: If the word has already undergone a phonological change (/q/→[ʔ], /ð/→[z], /θ/→[s, t]):

a) if /r/ come *after* the modified phoneme, then the rules above apply.

b) if /r/ comes *before* the modified phoneme, then it is not emphatic, whatever the immediate context.

Rule # 8: Unlike in classical Arabic, /ʁ/ is a non-emphatic phoneme in educated Cairene and it does not trigger emphasis. However, it may undergo emphasis under the influence of an emphasis-triggering phoneme (/ṣ, ṭ, ḍ, ọ̣/ or an emphatic [q, ɾ] according to their specific rules).

Rule # 9: There is one exception to Rule # 8: [li-ʁaːjet] "until" where some free variation seems to happen (regional variation?)

Rule # 10: When speakers use MSA, the preposition /ʁajr/ "un-" is pronounced emphatically [ʁajr], as it goes in fuṣḥá al-'aṣr (MSA) and fuṣḥá al-turāth.

Rule # 11: Unlike in classical Arabic, /χ/ is a non-emphatic phoneme in educated Cairene and it does not trigger emphasis. However, it may undergo emphasis under the influence of an emphasis-triggering phoneme (/ṣ, ṭ, ḍ, ọ̣/ or an emphatic [q, ɾ] according to their specific rules).

Rule # 12: When speakers use MSA, the adjective /χajr/ "good" is pronounced emphatically [χajr], as it goes in fuṣḥá al-'aṣr (MSA) and fuṣḥá al-turāth.

Rule # 13: In the educated Cairene Arabic dialect /ʕ/ and /ħ/ are non-emphatic phonemes and they do not trigger emphasis. However, they may undergo emphasis under the influence of an emphasis-triggering phoneme (/ṣ, ṭ, ḍ, ọ̣/ or an emphatic [q, ɾ] according to their specific rules). In fuṣḥá al-'aṣr (MSA) and fuṣḥá al-turāth, these phonemes trigger labialization (Badawi, 1973) but not emphasis.

Rule # 14: The morpho-phoneme /-aːt/, feminine plural marker, does not block the emphasis spread throughout the whole word, even if the emphasis-trigger is the

last phoneme of the phonological word. In some cases, the word may be not emphatic before the addition of /–aːt/ and emphatic after (this can happen in some cases if the last consonant of the word is /r/).

Rule # 15: The emphasis of the last /r/ in the morpho-phoneme /–taːʃar/ "-teen" (used to form numbers from 11 to 19) does not spread to the first part of words compounds of /–taːʃar/ if this first part contain an /i/.

Rule # 16: The morpho-phoneme /–an/, which marks the indefinite accusative nunation, adapts to the word to which it is added, keeping the emphasis of the last syllable as it was.

Rule # 17: The two-syllable morpho-phoneme /–ijja–/, the feminine *nisba* marker, blocks emphasis by splitting in two. The first syllable is eventually emphasized according to the emphasis rules of the word, but the second syllable is never emphasized. There were too few data in the corpus to decide for the emphasis of the masculine *nisba* marker /–ijj–/.

Rule # 18: The morpho-phoneme /–ka/ "your (masculine singular)", attached pronoun suffix, can be realized in a "high" or "low" version of the language: [–ka] (the two fuṣḥá levels) and [–ak] (the three ʿammiyya levels).

a) The "high" realization [–ka] always blocks emphasis.

b) The "low" realization [–ak] blocks emphasis, unless the last consonant of the word is the emphasis-trigger itself. In these cases, the phoneme surfaces as [–ɐk].

It is important that the AFL teachers be aware of these rules, so that they can explicitly teach them to the students. The only really problematic case, is Rule # 6-c-3, which corresponds to a /r/, after a [–front] vowel and before a consonant other than /j/ in a non-monosyllabic word. This is quite a common configuration and the teacher should draw students' attention on it, telling them that no rule applies and that they should remember the words as well as their emphatic pattern. In all the other cases, the rules apply quite regularly and there are few exceptions which the teacher can easily point during the class.

More research should be done to explore the emphasis feature of /r/ in this variety of the language. Other questions remain open to research as well in the field of emphasis: The behavior of the conjugation prefixes, the suffixes in general, the foreign loads.

During this study, it was clearer than ever that all the varieties of the Arabic language form a continuum, and that it is quite difficult to study them separately, as one cannot separate two sides of one coin. It was also observed that personal, regional, educational and social variations are important factors. All this gives a more vibrant image of the language and reminds us that languages are living creatures, spoken by living beings.

REFERENCES

Alioua, A. (1995). Emphasis in Arabic: A dependency account. In A. F. Fehri (Ed.), *African linguistics. Proceedings of the second international conference of the Linguistic Society of Morocco* (pp. 243-251). Rabat: Université Mohammed-V.

Alioua, A. (1997). Effet d'imprégnation des consonnes emphatiques sur les voyelles longues en arabe littéral moderne. *Travaux de l'Institut de Phonétique de Strasbourg, 27*, 1-23.

Ani, S. H. al-. (1970). Arabic phonology: An acoustical and physiological investigation. The Hague: Mouton.

Badawī, al-S. M. (1973). *Mustawayāt al-ʻarabiyyah al-muʻāṣirah fī Miṣr.* al-Qāhirah: Dār al-Maʻārif.

Badawī, al-S. M. (1986). *A dictionary of Egyptian Arabic.* Beirut: Librairie du Liban.

Davis, S. (1993). Arabic pharyngealization and phonological features. In M. Eid & C. Holes (Ed.), *Perspectives on Arabic linguistics, V* (pp. 149-162). Amsterdam & Philadelphia: John Benjamins.

Davis, S. (1995). Emphasis spread in Arabic and grounded phonology. *Linguistic Inquiry, 26*, 465-498.

Ghazeli, S. (1982). La coarticulation de l'emphase en arabe. *Arabica, 28*, 251-277

Goitein, S. D. (1960). The language of al-Gades: The main characteristics of an Arabic dialect spoken in Lower Yemen. *Le Muséon, 73*, 351-394.

Goitein, S. D. (1970). Jemenica. Sprichwörter und Redensarten aus Zentral-Jemen. Leiden: Brill.

Guerssel, M. M. (2003). Why Arabic guttural assimilation is not a phonological process. In S. Ploch (Ed.), *Living on the edge* (pp. 581-98). Berlin: Mouton de Gruyter.

Handbook of the International Phonetic Association. (1999). Cambridge: Cambridge University Press.

Harrell, R. S. (1957). *The phonology of colloquial Egyptian Arabic.* New York: American Council of Learned Societies.

Ḥassān, T. (1955). *Manāhij al-baḥth fī al-lughah.* al-Qāhirah: Maktabat al-Anglū al-Miṣriyyah.

Herzallah, R. (1990). *Aspects of Palestinian Arabic phonology: A non-linear approach.* Doctoral dissertation. Ithaca, N.Y.: Cornell University.

Heselwood, B. (1996). Glottal states and emphasis in Baghdadi and Cairene Arabic: synchronic and diachronic aspects [Electronic version]. In J. Dickins (Ed.), *Three topics in Arabic phonology* (pp. 20-44). Durham: Centre for Middle Eastern and Islamic Studies, University of Durham.

Ladefoged, P. (2006). *A course in phonetics.* Boston, MA: Thomson Wadsworth.

Lehn, W. (1963). Emphasis in Cairo Arabic. *Language, 34,* 29-39.

McOmber, M. L. (1996). Phonemic pharyngealization. In M. Eid (Ed.), *Perspectives on Arabic linguistics, VIII* (pp. 233-258). Amsterdam & Philadelphia: John Benjamins.

Muṣḥaf al-tajwīd. al-Qur'ān al-Karīm (4th ed.). (1999). al-Qāhirah: Dār al-Maʻrifah.

Naim, S. (1998). The adventures of Arabic words from elsewhere: Loanwords and pharyngealization. *La Linguistique, 34*, 91-102.

Nelson, K. (2001). *The art of reciting the Qur'an*. Cairo & New York: The American University in Cairo Press.

Norlin, K. (1987). A phonetic study of emphasis and vowels in Egyptian Arabic. *Working Papers, 30*, 1-119.

Obrecht, D. H. (1968). Effects of the second formant on the perception of velarization consonants in Arabic. The Hague & Paris: Mouton.

Qafisheh, H. A. (1992). *Yemeni Arabic reference grammar*. Kensington, MD: Dunwoody Press.

Rajouani, A., Najim, M. & Chiadmi, D. (1987). Synthesis of the pharyngealization feature in Arabic, *Speech Communication, 6*, 261-268.

Royal, A. M. (1985). Male/female pharyngealization patterns in Cairo Arabic: A sociolinguistic study of two neighborhoods. Austin: The University of Texas.

al-Samātī, I. al-Ṭ. (2005). *al-Inbā' fī tajwīd al-Qur'ān* (Ḥ. Ṣ. al-Ḍāmin, Ed.). al-Qāhirah: al-Maktab al-Islāmī li-Iḥyā' al-Turāth.

Shaaban, K. (1983). A new look at the emphatic consonants in modern Arabic dialects. *Al-Abhath, 31*, 111-120.

Shahin, K. N. (1995). *Rural Palestinian Arabic (Abu Shusha dialect)*. Munich & Newcastle: Lincoln Europa.

Shahin, K. N. (1996). Accessing pharyngeal place in Palestinian Arabic. In Eid, M. & Parkinson, D. (Ed.), *Perspectives on Arabic Linguistics, IX* (pp. 131-149). Amsterdam & Philadelphia: John Benjamins.

Shahin, K. N. (1997). Acoustics of pharyngealization vs. uvularization harmony. In M. Eid (Ed.), *Perspectives on Arabic linguistics, X* (pp. 215-237). Amsterdam & Philadelphia: John Benjamins.

Shahin, K. N. (1998). Optimized post-velar harmony in Palestinian Arabic. In E. Benmamoun, M. Eid & N. Haeri (Ed.), *Perspectives on Arabic Linguistics, XI* (pp. 143-164). Amsterdam & Philadelphia: John Benjamins.

Shorafat, M. al-. (1985). Emphasis assimilation in classical Arabic. *The Search, 6*, 88-101.

Svantesson, J. O. (1986). Acoustic analysis of Chinese fricatives and affricates. *Journal of Chinese linguistics, 14*, 53-70.

Tomiche, N. (1964). *Le parler arabe du Caire.* Paris & La Haye: Mouton.

Wahba, K. M. (1996). Linguistic variation in Alexandrian Arabic: The feature of emphasis In Elgibali, A. (Ed.), *Understanding Arabic: Essays in contemporary Arabic linguistics in honor of El-Said Badawi* (pp. 103-128). Cairo: The American University in Cairo Press.

Watson, J. C. E. (1995). Emphasis in San'ānī Arabic. In *Proceedings of the second international conference of AIDA* (pp. 253-258). No editor mentioned.

Watson, J. C. E. (1996). *Sbahtū! A course in San'ani Arabic.* Wiesbaden: Harrassowitz.

Watson, J. C. E. (1999). The directionality of emphasis spread in Arabic. *Linguistic Inquiry*, *30*, 289-300.

al-Khalīl, A. (1988). *Kitāb al-ʿayn* (M. al-Makhzūmī & I. al-Sāmarāʿī, Ed.) al-juzʾ al-awwal. Bayrūt: Muʾassasat al-aʿlamī lil-maṭbūʿāt.

Younes, M. A. (1993). Emphasis spread in two Arabic dialects. In M. Eid, & C. Holes (Ed.), *Perspectives on Arabic Linguistics*, *V* (pp. 119-145). Amsterdam & Philadelphia: John Benjamins.

Younes, M. A. (1994). On Emphasis and /r/ in Arabic. In M. Eid, V. Cantarino & K. Walters (Ed.), *Perspectives on Arabic Linguistics*, *VI* (pp. 215-235). Amsterdam & Philadelphia: John Benjamins.

Zawaydeh, B. A. (1997). An acoustic analysis of uvularization spread in Ammani-Jordanian Arabic. *Studies in the linguistic sciences*, *27*, 185-200.

Zawaydeh, B. A. (1998). Gradient uvularization spread in Ammani-Jordanian Arabic. In E. Benmamoun, M. Eid & N. Haeri (Ed.), *Perspectives on Arabic Linguistics*, *XI* (pp. 117-141). Amsterdam & Philadelphia: John Benjamins.

Zemánek, P. (1990). À propos de la pharyngealisation et de la glottalisation en arabe. *Archív Orientálni*, *58*, 125-134.

APPENDIX A: DETAIL OF THE EPISODES

1: Saturday, March 4th, 2006, 8 p.m. Topic: The political prisons in Egypt.

2: Saturday, March 18th, 2006, 8 p.m. Topic: The sunk ferryboat "Salām 98" (1).

3: Saturday, March 25th, 2006, 8 p.m. Topic: The sunk ferryboat "Salām 98"(2).

4: Saturday, April 8th, 2006, 8 p.m. Topic: The sunk ferryboat "Salām 98" (3).

5: Saturday, April 15th, 2006, 8 p.m. Topic: Illegal kidney transplants in Egypt.

6: Saturday, April 22th, 2006, 8 p.m. Topic: Anti-Copts attacks in Alexandria.

7: Saturday, April 29th, 2006, 8 p.m. Topic: The Bahā'īs in Egypt.

APPENDIX B: DETAIL OF THE AUDIO TRACKS

Here is the detail of the audio tracks that were used for this research. The passages where the anchorman was obviously reading his text were omitted.

1^a, from 02:14 to 24:23 (Anchorman reading from 00:39 to 02:14).

1^b, from 04:19 to 16:20 (Anchorman reading from 04:02 to 04:19).

2^a, from 04:09 to 22:58 (Anchorman reading from 00:36 to 04:09, including a short reportage on the topic which is not taken into account in the study).

2^b, from 00:17 to 47:55 (No reading).

3, from 05:07 to 31:52 (Anchorman reading from 04:05 to 05:07).

4, from 00:38 to 44:19 (Anchorman reading from 00:04 to 00:38).

5, from 01:04 to 48:04 (Anchorman reading from 00:04 to 01:04. The episode also includes three short reportages which are not taken into account in the study).

6, from 09:09 to 41:58 (Anchorman reading from 00:05 to 09:09, including a short reportage on the topic which is not taken into account in the study. The episode is followed by a short reportage from 42:55 to 50:24).

7, from 05:40 to 43:00 (Anchorman reading from 00:04 to 05:40, including a short reportage on the topic which is not taken into account in the study).

APPENDIX C: DETAIL OF THE INFORMANTS

A: Wā'il al-Ibrāshī, journalist, anchorman of the program al-Ḥaqīqah. (All the episodes.)

B: Mamdūḥ Ismā'īl, lawyer of the Islamic associations. (Episodes 1 and 7.)

C: Fu'ād 'Allām, agent of the former state's security intelligence service. (Episode 1.)

D: Majdī al-Basyūnī, former vice-minister of the interior. (Episode 1.)

E: 'Abd-Allāh Khalīl, international counselor for the human rights. (Episode 1.)

F: 'Alā' 'Abd-al-Mun'im, member of the People's Assembly. (Episode 2.)

G: Bahīja Ḥāfiz, witness. (Episode 2.)

H: 'Āṣim Nuṣayr, representative of the international compensatory board. (Episode 2.)

I: 'Anān 'Abd al-Majīd Ibrāhīm, witness. (Episode 2.)

J: Muḥammad Sulaymān Shūshah, witness. (Episode 2.)

K: Lānā Muḥammad Mamdūḥ, witness. (Episode 2.)

L: Basint 'Abd-al-Salām, witness. (Episode 2.)

M: Salīm, witness. (Episode 2.)

N: Yusriyya Ḥasab-al-Nabī al-Ṣāfī, witness. (Episodes 2 and 3.)

O: Muṣṭafá Muḥammad al-Sayyid, witness. (Episode 3.)

P: Ṣalāḥ-al-Dīn Jum'ah, former captain of the M/S Saint Catherin. (Episode 3.)

Q: al-Badrī Farghalī, former member of the People's Assembly. (Episode 3.)

R: Inās Ḥusayn, witness. (Episode 3.)

S: Laylá Jamāl, witness. (Episode 3.)

T: Muḥammad ʻAbd-al-Futūḥ al-Saʻdanī, former expert in an international body for supervision and registration of the boats. (Episode 4.)

U: Ḥamdī al-Ṭahhān, president of the commission for the investigation in the accident of the sunk boat. (Episode 4.)

V: Muḥammad Anwar ʻIṣmat al-Sādāt, member of the commission for the investigation in the accident of the sunk boat. (Episode 4.)

W: Muḥammad ʻĀmir, member of the commission for the investigation in the accident of the sunk boat. (Episode 4.)

X: Badawī Labīb, dean of the department of internal medicine and kidneys in the Miṣr li-l-ʻUlūm wa-l-Tiknūlūjiyā University. (Episode 5.)

Y: ʻAbd al-Munʻim Ḥasab-Allāh, representative of the physicians' corporation and professor of internal medicine and kidneys at al-Qaṣr al-ʻAynī's faculty of medicine. (Episode 5.)

Z: ʻAlī ʻAfīfī, witness. (Episode 5.)

AA: Muʼmin ʻAbd al-Ghanī, witness. (Episode 5.)

AB: ʻAzzah Kamāl, witness. (Episode 5.)

AC: Fāṭimah ʻAlī Wardānī, witness. (Episode 5.)

AD: Ḥamdī al-Sayyid, chairman of the physicians' corporation. (Episode 5.)

AE: Najīb Jibrāʼīl, president of the Egyptian Union for Human Rights. (Episode 6.)

AF: ʿAdlī Abādīr, one of the leaders of the Coptic diaspora. (Episode 6.)

AG: Muḥammad al-Badrashīnī, former member of the People's Assembly. (Episode 6.)

AH: Mukhtār Nūḥ, former member of the People's Assembly. (Episode 6.)

AI: ʿAbd-Allāh ʿAlī Samak, president of the Department of Religions and Religious Movements at the University of al-Azhar. (Episode 7.)

AJ: Ḥusayn Ṣabrī Ilyās, commercial director. (Episode 7.)

AK: Labīb Muʿawwaḍ, lawyer. (Episode 7.)

AL: Ra'ūf Hindī Ḥalīm, dentist. (Episode 7.)