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A CONTRASTIVE ANALYSIS OF AMERICAN
ENGLISH AND SYRIAN ARABIC
CONSONANT CLUSTERS

by

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PREFACE

The purpose of this thesis is to identify and contrast the initial and final consonant clusters of both American English and Syrian Arabic. Consonant clusters constitute a pronunciation problem for Syrian students when learning American English as a foreign language. Experience has proved that modern methods of teaching foreign languages are still unknown in Syria. Teachers need to be informed of the new techniques practiced in the field of teaching foreign languages as well as to be provided with materials based on applying linguistic science.

This work, I hope, will help the teachers in their pedagogical task, and that it will be of practical use in enriching the time devoted for teaching pronunciation.

I am glad to express my gratitude to the following Professors who have contributed to the development of this thesis.

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To my mother, my first teacher, I dedicate this first work of mine.

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INTRODUCTION

Our present-day world does not, like the ancient world, consist of independent self-sufficient nations. The world has become one vast community which depends for its very existence on the sharing of ideas and the exchange of goods. Any relation between groups of human beings is based on the exchange of ideas, and the greatest means of exchange is language. Knowledge of a foreign language is no longer a cultural adornment for the few whose primary aim was to read the classics and gain access to the wisdom of the great men who wrote in that language. Today the situation is different. The primary aim of learning a foreign language is to facilitate the business of daily life. It is now needed in business, in travel and in research. The need of thousands of people as compared to the few scholars of the past has been shifted from merely reading the new language to an urgent need to understand it and speak it. To understand it in the form spoken by a native speaker, and speak it in such a way that the natives consider each as one of themselves.

The new approach to foreign language teaching tries to satisfy the new needs of these thousands of people. It consists of:¹

¹Harold E. Palmer, The Oral Method of Teaching Languages (Cambridge: W. Heffer and Sons, Ltd, 1955), pp 1-13.

- 1) Understanding the nature of language itself. Linguistic scientists have contributed a lot in showing how language operates to convey meaning.
- 2) Understanding the psychological and physiological process by which languages are learned.

The approach accordingly has adopted the process of learning one's own native language. We mastered our native language by imitating others who speak it, by repeating it until it became automatic. Step by step, we mastered the sound system before we learned to read it, and we learned to write it after we learned to read it. The difference is the attitude of the learner towards the new language. He has to be trained to listen and observe in the right way, to form the proper imitation habit, and to use his auditory memory in order to be able to pick up the language and keep it as he did his mother tongue. Sometimes, explaining how the new sounds are formed and contrasting them with the native sounds may help to quicken the process of learning.

We can conclude that the approach is based on the assumption that the spoken form of the language is more important than the written one, as long as the aim of the student is not to read the language only but to understand what is said and to speak in the manner of natives. Accordingly the best device in teaching a foreign language consists now of drilling the pupils to hear and produce the sounds and structures of the target language.

It is in hearing and producing the sounds of the new language that we face the first problem in learning a foreign language; the phonological problem. If ear training is neglected the student will tend to replace foreign sounds by native ones and insert strange sounds into the words of the language.

Phonological problems arise from using the native linguistic habits because, as Palmer says in The Principles of Language Study, "We don't hear what is actually said to us; we merely hear what we expect to hear."¹

Lado too emphasizes the importance of habit in acquiring the native language as well as the foreign language. He says:

The learner transfers the sound system of his native language and uses it instead of that of the foreign language without fully realizing it....This transfer occurs even when the learner consciously attempts to avoid it. Force of habit influences his learning as well as his speaking. He does not hear through the sound system of the target language but filters what reaches his ear through his own sound system.²

It is clear from the above quotations that the recognition and production of the sound system of a new language is of primary importance in mastering that language, and that the learner transfers unconsciously his native sounds to the target language. He does not actually hear the foreign sounds; he hears his own and transfers them to the foreign language.

Even if the learner has the same sounds in his native

¹Harold E. Palmer, The Principles of Language Study (London: George G. Harrap and Co., Ltd, 1928), p. 118.

²Robert Lado, Language Teaching: A Scientific Approach (New York: McGraw-Hill, Inc. 1964), p. 72.

language, he may not have them in the same combinations or in the same positions; the new sounds in the target language present difficulties in their forms, combinations and distributions.

The problem facing the learner would lie in recognizing and producing the sounds of the target language in all their positions and combinations. The learner of a new language may have sound units in his own language similar to those in the target language, but may not have similar clusters.

Consonant clusters are one of the problems of forms, combinations and distributions, for the possibilities of their occurrence are numerous in English in initial and final positions; and consonant clusters of more than two segments are a phenomenon that characterizes English and constitutes a serious problem to the Syrian students. The utility of a contrastive analysis in the preparation of teaching materials is meant to point out the problem of consonant clusters that a native speaker of Syrian Arabic faces when learning English as a foreign language.

Identifying and contrasting the initial and final consonant clusters of American English and Syrian Arabic is based on the assumption that "the most effective materials are those that are based upon a scientific description of the language to be learned, carefully compared with a parallel description of the native language of the

learner."¹

Therefore each consonant phoneme and its allophones in both languages, English and Arabic, are described briefly. Then the consonant clusters of Syrian Arabic and those of American English are compared in order to discover those consonant clusters occurring in American English but not in Syrian Arabic and therefore present a serious problem to Syrian students. It is only by isolating these problems that teachers are able to deal with them.

The writer used herself as an informant and a part of her own speech as the corpus of material of which the analysis was made. The dialect used is the spoken dialect of the people of Homs, Syria. It is also spoken all over the country with some variations.

To ascertain the accuracy of her pronunciation, the writer checked the material with two informants speaking the same dialect. Then the collected items were transcribed into a phonemic alphabet using the symbols suggested by Nasr in Colloquial Arabic: An Oral Approach.² Syrian Arabic consonant clusters are ordered according to type of articulation; stops, affricates, fricatives, nasals, laterals and semi-vowels. For the American English initial and final

¹Charles C. Fries, Teaching and Learning English as a Second Language (Ann Arbor: The University of Michigan Press, 1955), p. 9.

²Raja T. Nasr, Colloquial Arabic: An Oral Approach (Beirut: Librairie de Liban, 1966), p. 8.

consonant clusters the writer applied the list used by Nasr in The Teaching of English to Arab Students.¹

On the basis of contrasting the Arabic data with the American English consonant clusters, the writer predicts and describes the clusters which do not exist in Arabic and which Syrian speakers learning English may have difficulty with. These clusters are listed in an order indicating whether they present simple or complex problems.

Then the writer prepares some sample pronunciation drills with two purposes in mind:

- a) To help Arab students overcome pronunciation problems and
- b) To provide teachers with models for use in similar situations, applying the techniques suggested by modern methods.

¹The list of consonant clusters used by Nasr is taken from Betty J. Wallace A Quantitative Analysis of Consonant Clusters in Present Day English, Doctoral Dissertation, (Ann Arbor, Michigan: University of Michigan, 1950), pp. 63-69 and 120-2.

CHAPTER I

THE DESCRIPTION OF AMERICAN ENGLISH AND SYRIAN ARABIC CONSONANTS

Introduction

Hall introduced his chapter on sounds in his book Linguistics and Your Language by saying that "human language is primarily an oral - aural system of signalling. In other words, all speech is made up of sounds. Sounds serve more or less as the building blocks out of which our speech is put together."¹

In teaching a foreign language it is important to recognize that the spoken form is more important than the written in any living language and that writing is secondary as compared to speech, and that producing the target sounds is the main part in the acquisition of the new language. This may be accomplished by repetition and imitation, but sometimes this may be incomplete if not followed by explaining how the new sounds are formed and then contrasted with the native sounds. In order to be effective, teachers should have the ability to explain how to form the new sounds in relation to the native speech habits. Having this in mind, a brief

¹Robert Hall, Linguistics and Your Language (New York: Doubleday and Company, Inc., 1960), p. 68.

examination of the consonants of the phonological system is needed. In order to do this, we cannot escape a brief description of the nature of language and a discussion of elements that constitute it.

Human speech consists of sound units, or phonemes. "Phonemes are the distinctive features of a sound system; they are in meaningful contrast with other phonemes of the language."¹ Allophones are the sub-members of the same phonemes; they do not change the meaning of a word when they are substituted by another similar sound and therefore they are not distinctive features of the language.

Each language has its own phonemes and allophones, and languages differ in the number of their phonemes, allophones and their distribution. What may be considered in one language as a phonemic or distinctive feature may be insignificant in another.

When we compare the sound systems of two languages, we may see that "some phonemes are physically, structurally and distributionally similar....On the other hand, we may find phonemes that do not exist in the sound system of the other language; or, if they exist, they are structurally and distributionally different."²

¹Nasr, loc. cit., p. 9.

²Robert Lado, Linguistics Across Cultures (Ann Arbor: The University of Michigan Press, 1957), p. 12.

Therefore, a brief description of the sound system of the native language and the target language is needed as a first step for comparing them in order to predict the pronunciation problems that a teacher may face in his task. Because the purpose of this work is to contrast and analyze the consonant clusters of both American English and Syrian Arabic; the focus will be on consonants as a part of the segmental features, leaving vowels as well as supersegmental features to other investigations on the subject.

The Consonants of American English

In American English there are twenty-four consonants:
/p, b, t, d, k, g, f, v, θ, ð, s, z, ʃ, ʒ, č, ʝ, h, m, n,
ŋ, l, r, w, y/.

Each consonant is described individually. Brackets are used to indicate phonetic transcription, while diagonals are used to indicate phonemic transcription. The symbols are adopted from Trager and Smith, An Outline of English Structure.¹ This book is chosen as a basis for the description of the consonants, because it presents a total pattern of all dialects of English. Some unneeded descriptions are omitted in order to seek simplicity for pedagogical purposes.

¹George L. Trager and Henry Lee Smith, Jr. An Outline of English Structure (Norman, Oklahoma: Battenburg Press, 1951), pp. 7 - 8.

a) The Description of Consonants

Stop consonants are made by the stoppage of the air passage at some point.

/p/ is a voiceless bilabial stop, with two allophones:

[p^h] is aspirated and occurs initially and medially before stressed syllables. It is released finally and occurs in complementary distribution with [p]

/pɪl/ [p^hɪl] "pill". /əpɪl/ [əpɪl] "appeal"

[p] Unaspirated unreleased. It occurs in complementary distribution with [p^h]. /æpl/ "apple"

/t/ is a voiceless alveolar stop, with two allophones:

[t^h] is aspirated and occurs initially and medially before stressed syllables. It is released finally and occurs in complementary distribution with [t].

/ten/ [t^hen] "ten". /kæt/ [k^hæt^h] "cat"

[t] Unaspirated unreleased. It occurs in complementary distribution with [t^h]. /letɪŋ/ [letɪŋ] "letting"

/k/ is a voiceless velar stop, with two allophones:

[k^h] is aspirated and occurs initially and medially before stressed syllables and is released finally.

/kɪl/, [k^hɪl] "kill". /bʊk/ [bʊk^h] "book"

[k] Unaspirated unreleased. It occurs in complementary distribution with [k^h].

/lʊkɪŋ/, [lʊkɪŋ] "looking"

/b/ [b] is a voiced bilabial stop. It occurs in all positions.

/bowt/ [bowt^h] "boat". /rowb/ [rowb] "robe"

/ribn/ [ribn] "ribbon".

/d/ [d] is a voiced alveolar stop. It occurs in all positions.

/duw/ [duw] "do". /lédər/ [lédər] "ladder"

/hid/ [hid] "hid".

/g/ [g] is a voiced velar stop. It occurs in all positions.

/gəm/ [gəm] "gum". /ɪŋgliš/ [ɪŋgliš] "English"

/big/ [big] "big".

Affricates are phonetically a combination of a stop with a fricative; [t] and [š] or [d] and [ž]; phonemically they are a unit.

/č/ [č] is a voiceless alveopalatal affricate. It occurs in all positions.

/čérč/ [čérč] "church". /máčez/ [máčez] "matches"

/máč/ [máč] "match".

/j/ [j] is a voiced alveopalatal affricate. It occurs in all positions.

/juwn/ [juwn] "June". /préjudis/ [préjudis] "prejudice"

/órinj/ [órinj] "orange".

Fricative consonants are made by narrowing the mouth passage at some point; so that air makes a friction sound when forcing its way out.

/f/ [f] is a voiceless labio-dental fricative. It occurs in all positions.

/fæt/ [fæt^h] "fat". /láfɪŋ/ [láfɪŋ] "laughing"
/læf/ [læf] "laugh"

/v/ [v] is a voiced labio-dental fricative. It occurs in all positions.

/vívɪd/ [vívɪd] "vivid". /liv/ [liv] "live"
/never/ [never] "never"

/θ/ [θ] is a voiceless dental fricative. It occurs in all positions.

/θɪn/, [θɪn] "thin". /nʌθɪŋ/ [nʌθɪŋ] "nothing"
/bæθ/ [bæθ] "bath".

/ð/ [ð] is a voiced dental fricative. It occurs in all positions.

/ðɪs/, [ðɪs] "this". /mʌðər/ [mʌðər] "mother"
/wɪð/ [wɪð] "with".

/s/ [s] is a voiceless alveolar fricative. It occurs in all positions.

/sæd/, [sæd] "sad". /lésn/, [lésn] "lesson"
/græs/, [græs] "grass".

/z/ [z] is a voiced alveolar fricative. It occurs in all positions.

/zʊw/ [zʊw] "zoo". /beziŋ/, [bʌziŋ] "buzzing"
/beɪz/ [bʌz] "buzz"

/ʃ/ [ʃ] is a voiceless alveopalatal fricative. It occurs in all positions.

/ʃɪp/, [ʃɪp] "ship" /préʃər/ [préʃər] "pressure"
/fɪʃ/, [fɪʃ] "fish"

/ʒ/ [ʒ] is a voiced alveopalatal fricative. It never occurs initially. It occurs finally in some words as

rouge and garage

/pléʒer/, [pléʒer] "pleasure"

/h/ [h] is a voiceless glottal fricative. It never occurs finally.

/helθ/, [helθ] "health" /rihérs/ [rihérs] "rehearse"

Nasal consonants are made by closing the mouth

passage at some point, and at the same time lowering the soft palate, so that air can escape through the nose.

/m/ [m] is a voiced bilabial nasal. It occurs in all positions.

/méðer/ [m^hðer] "mother". /swimiŋ/ [swimiŋ] "swimming"

/kəm/ [kəm] "come"

/n/ [n] is a voiced alveolar nasal. It occurs in all positions.

/net/ [net] "net" /diner/ [diner] "dinner"

/sən/, [s^hn] "sun"

/ŋ/ [ŋ] is a voiced velar nasal. It never occurs initially.

/iŋgliš/ [iŋgliš] "English" /θiŋ/, [θiŋ] "thing"

Lateral consonants are made when the air passage is stopped in the centre of the mouth by the tip of the tongue against the teeth-ridge; the air escapes along one or both sides of the tongue.

/l/ is a voiced lateral. It has two allophones:

[l] is a voiced alveolar lateral. It occurs before

vowels and it is called clear [l]. /liv/ [liv] "live".
[ɫ] is a voiced velarized lateral. It occurs after vowels
and before consonants. It is called dark [ɫ]
/milk/, [milk] "milk". /pil/ [p^hil] "pill".

A retroflex is made with the tongue tip curled up
towards the hard palate.

/r/ [r] is a voiced retroflex. It occurs in all positions.
/rowb/ [rowb] "robe". /freš/ [freš] "fresh".
/fayer/, [f^ɻayer] "fire".

Semi-vowels are a gliding sound in which the tongue
starts in a position and soon leaves it to another
that is more open.

/w/ [w] is a voiced nonsyllabic bilabial continuant. It
occurs in all positions.
/wiŋ/, [wiŋ] "wing" /juwn/ [juwn] "June" /zuw/,
[zuw] "zoo".

/y/ [y] is a voiced nonsyllabic palatal continuant. It occurs
in all positions. /yes/, [yes] "yes".
/sleyiŋ/, [sleyiŋ] "slaying". /sley/, [sley] "slay".

The Consonants of Syrian Arabic

In Syrian Arabic there are twenty-nine consonants,
/t, T, k, ʔ, b, d, D, g, f, s, S, š, x, h, h, v, z, Z, ž,
g, ǧ, m, n, l, L, r, R, w, y/.

The reference here is only to the consonants that occur
in the colloquial form of Syrian Arabic.

The symbols of consonants are adopted from Nasr,
Colloquial Arabic: An Oral Approach.¹ This book is also
chosen as a basis for the description of consonants because
it presents colloquial Arabic.

¹Raja T. Nasr, Colloquial Arabic: An Oral Approach
(Beirut: Librairie de Liban, 1966), p. 8.

a) The Description of Consonants

The Syrian Arabic consonants, like the consonants of American English, are classified according to the manner and point of articulation, in addition to the element of voicing.

Stop consonants are made by the stoppage of the air passage at some point.

/t/ is a voiceless dental stop, with two allophones:

[t^h] is a voiceless aspirated dental stop. It appears initially and medially in stressed syllables and it is released finally.

/talž/, [t^halž] "ice". /ħu:t/, [ħu:t^h] "whale".

[t] is a voiceless unaspirated dental stop. It occurs in complementary distribution with [t^h].

/mitr/, [mitr] "meter"

/T/ [T] is a voiceless dental velarized stop. It occurs in all positions.

/Tánžara/, [Tánžərə] "pot". /háTTa/, [háTṬa] "scarf"

/baTT/, [baTṬ] "ducks".

/k/ is a voiceless velar stop, with two allophones:

[k^h] is a voiceless aspirated velar stop. It appears initially and medially before stressed syllables and it is released finally.

[k] is voiceless unaspirated velar stop. It is in complementary distribution with [k^h]. /baka/.

[bæke] "he wept".

/ʔ/ [ʔ] is a voiceless glottal stop. It occurs in all positions.

/ʔáməl/, [ʔáməl] "hope". /sáʔal/, [sáʔəl] "he asked",
/sa:ʔ/, [sæ:ʔ] "he drove".

/b/ is a voiced bilabial stop. It has two allophones:

[p] is a voiceless bilabial stop. It occurs only before voiceless consonants. /habs/, [habs] "prison"

[b] is a voiced bilabial stop. It occurs in complementary distribution with [p]

/bard/, [bard] "cold". /nabá:t/, [nebé:t] "plant"

/ba:b/ [bæ:b] "door"

/d/ [d] is a voiced dental stop. It occurs in all positions.

/du:d/, [du:d] "worms". /á:dam/ [é:dəm] "Adam"

/madd/, [mædd] "tide"

/D/ [D] is a voiced dental velarized stop. It occurs in all positions. /Dam/, [Dam] "grasping"

/máDa/, [máDα] "he passed". /gáD/, [gαD] "biting"

Fricative consonants are made by narrowing the mouth passage at some point, so that air makes a friction noise when forcing its way out.

/g/ [g] is a voiced velar stop. It is a phoneme of low functional load. It occurs initially and medially.

/gídaḡ/, [gídaḡ] "brave". /ʔargí:li/, [ʔargí:li] "hubble-bubble".

/f/ [f] is a voiceless labio-dental fricative. It occurs in all positions.

/fu:l/, [fu:l] "beans". /malfú:f/ [mælfú:f] "cabbage"

/s/ [s] is a voiceless alveolar fricative. It occurs in all positions.

/lsa:n/, [lsæ:n] "tongue". /samn/, [sæmn] "fat"
/xass/, [xass] "lettuce"

/S/ [S] is a voiceless alveolar velarized fricative. It occurs in all positions.

/Sabr/ [Səbr] "patience"
/maSR/, [məSR] "Egypt". /nuSS/ [nuSS] "half"

/š/ [š] is a voiceless alveolar fricative. It occurs in all positions.

/šams/, [šams] "sun". /mušt/ [mušt] "comb".
/guš/ [guš] "nest"

/x/ [x] is a voiceless velar fricative. It occurs in all positions.

/xass/, [xass] "lettuce". /daxal/ [daxal] "he entered". /mux/, [mux] "mind".

/ħ/ [ħ] is a voiceless pharyngeal fricative. It occurs in all positions.

/ħall/ [ħall] "solution". /wahl/ [wahl] "mud"
/na:ħ/, [næ:ħ] he "mourned"

/h/ [h] is a voiceless glottal fricative. It occurs in all positions.

/hamm/ [hamm] "worries", /sahl/ [səhl] "easy"
/ʒa:h/ [ʒæ:h] "glory".

/v/ [v] is a voiced labio-dental fricative. It is a phoneme of low functional load. It occurs initially and

medially. /viránda/ [viránda] "viranda".

/brávu/ [brávu] "bravo".

/z/ [z] is a voiced alveolar fricative. It occurs in all positions.

//zāman/, [zāman] "time"

/ǰazm/, [ǰæzm] "strength". /mu:z/ [mo:z] "bananas"

/Z/ [Z] is a voiced alveolar velarized fricative. It occurs in all positions.

/Zulm/, [Zulm] "tyranny". /naZm/, [naZm] "composing poetry". /haz/ [haz] "luck"

/ž/ [ž] is a voiced alveopalatal fricative. It occurs in all positions.

/žaz/ [žaz] "chickens". /mažd/ [mæžd] "glory"

/g/ [g] is a voiced velar fricative. It occurs in all positions.

/gba:r/ [gba:r] "dust". /nágam/ [nágam] "tune".

/dma:g/, [dma:g] "brain".

/ǰ/ [ǰ] is a voiced pharyngeal fricative. It occurs in all positions.

/ǰind/, [ǰind] "at". /ǰáǰma/, [ǰéǰma] "blind".

/maǰ/ [maǰ] "with".

Nasal consonants are made by closing the mouth passage at some point and at the same time lowering the soft palate, so that air can escape through the nose.

/m/ [m] is a voiced bilabial nasal. It occurs in all positions.

/maǰ/, [mæǰ] "with". /šams/ [šæms] "sun".

/ǰism/, [ǰism] "name".

/n/ [n] is a voiced alveolar nasal. It occurs in all positions.
/na:s/, [na:s] "people". /?ána/ [?áne] "I"
/mi:n/, [mi:n] "who"

Lateral consonants are made when the air passage is stopped in the center of the mouth by the tip of the tongue against the teeth-ridge; the air escapes along one or both sides of the tongue.

/l/ [l] is a voiced alveolar lateral. It is called clear [l]. It occurs in all positions except adjacent to /TDSZRL/ and in the word /?aLLa/ [?alle] "god"
/la:m/, [læ:m] "he blamed". /?álaɣ/ [?æleɣ] "he pulled"
/ma:l/, [mæ:l] "money"

/L/ [L] is a voiced velarized lateral. It is called dark [l]. It occurs adjacent to /TDSZRL/ and in the word /?aLLa/ [?aLLə] "god". /LxæTT/, [LxæTT] "the line".
A flapped /r/ is formed by a rapid succession of taps of the tip of the tongue against the teeth-ridge.

/r/ [r] is a voiced alveolar flap. It occurs in all positions.
/mára/, [mære] "woman". /rama/, [ræme] "he threw"
/mar/, [mər] "he passed".

/R/ [R] is a voiced velarized flap. It occurs in all positions.
/RaTL/, [RaTL] "three pounds". /máRaD/, [máRaD] "illness".
Semi-vowels are a gliding sound in which the tongue starts in a position and soon leaves it to another.

/w/ [w] is a voiced nonsyllabic bilabial continuant.

It occurs in all positions.

/wáʒad/, [wáʒed] "he promised". /náwa/, [néwə] "he decided". /ʒaw/ [ʒæw] "weather".

/y/ [y] is a voiced nonsyllabic palatal continuant. It occurs in all positions.

/yá:xud/, [yæ:xod] "to take". /byu:t/ [byu:t] "houses". /may/, [may] "water".

CHAPTER II

A CONTRASTIVE STUDY OF AMERICAN ENGLISH AND SYRIAN ARABIC CONSONANT CLUSTERS

Introduction

Pike gives an important fact regarding the problem facing the Syrian student in recognizing and producing the sounds of the target language in all their positions and combinations. . .

He says:

Untrained foreigners do not intuitively recognize native sound units. On the contrary they are deaf to some of the native sound units and tend to hear only their own, even when the native is speaking. On the other hand, some sub-units which the native does not recognize the foreigner may notice simply because they happen to correspond with sound units of his own.¹

Lado, as well, refers to the same subject. He says:

Experience shows that when the foreign language uses a phoneme which does not exist in the learner's native language, that is, when there is no phoneme in the native language that could be transferred to the foreign language and actually function as the phoneme in question, the student will not be able to produce that phoneme readily in learning the foreign language. He will substitute some other phoneme from his native stock. Experience and experiments also show that the learner will have trouble learning as well as producing the new phoneme.²

Accordingly, the Syrian speakers learning American English transfer the sound system of Syrian Arabic to that of English, creating problems in pronunciation that can be predicted

¹Kenneth L. Pike, Phonemics (Ann Arbor: University of Michigan Press, 1951), p. 57.

²Lado, loc. cit., p. 13.

and described by means of a contrastive study of the sound systems of the two languages. A procedure suggested by Lado in his book Linguistics Across Cultures is adopted by the writer of this thesis. Lado says:

In learning the sound system of a foreign language one finds sounds that are physically similar to those of the native language, that structure similarly to them, and that are similarly distributed. Learning of such phonemes occurs by simple transfer without difficulty. On the other hand, one also finds sounds that are differently distributed. Learning of these occurs more slowly. And difficulty with them is more persistent. In fact, learning of the latter actually means learning the sounds of the language. We therefore seek to find those problems, and we will find them by the structural comparison of the two sound systems.¹

The procedure is presented in three stages: (1) linguistic description of sound systems, (2) comparison of sound systems, (3) a description of troublesome contrasts.

The description of the sound systems of the two languages should include the phonetic features of the phonemes, their allophones and their distribution.

In comparing the sound systems, the comparison should include a discussion about the phonemes that are similar in both languages, whether their allophones are similar and whether the phonemes and their allophones are similarly distributed.

Through this procedure we come to the conclusion that the most economical way to analyze and contrast the consonant clusters of both American English and Syrian Arabic is to list

¹Lado, loc. cit., p. 12.

the consonant clusters in both languages and then to check to see those that do not exist in American English and consequently form a pronunciation problem for Syrian students. The second step is to locate the positions in which these sequences occur in the foreign language and find out if these are different from their distribution in the native language.

For pedagogical purposes, it is more convenient to classify the consonant cluster problems into simple and complex problems. Simple problems are clusters that consist of sounds that are familiar to Syrian students when they are in isolation but present a difficulty when they are combined in clusters that do not exist in Syrian Arabic. Complex problems are clusters that do not exist in Syrian Arabic and at the same time consist of individual new sounds that present difficulty for students.

American English Consonant Clusters

The initial and final American consonant clusters are presented here with examples. Clusters that exist in Arabic are indicated and presented here with Arabic examples, then transcribed into phonemic alphabet. Those that have no equivalents in Arabic constitute phonological problems to Arab students.

a. Initial Consonant Clusters

Two Segments

	<u>English</u>	<u>Arabic</u>	
/pr/	print	-	
/pl/	place	-	
/pj/	pure	-	
/tr/	true	/trammal/	"to become a widow"
/tw/	twelve	/twažža/	"to feel pain"
/ts/	tsar	/tsabbah/	"he swam"
/kr/	cross	/kru:m/	"vineyards"
/kl/	clean	/kla:b/	"dogs"
/kw/	quite	/kwa:ʔ/	"corners"
/ky/	curiosity	/kya:s/	"bags"
/br/	break	/bru:h/	"I go"
/bl/	blue	/blu:mu/	"I'll blame him"
/by/	beauty	/byu:t/	"houses"
/dr/	drop	/dru:b/	"roads"
/dw/	dwelling	/dwa:b/	"animals"

	<u>English</u>	<u>Arabic</u>	
/gr/	ground	-	-
/gl/	glad	-	
/fr/	from	/fru:d/	guns
/fl/	flow	/flu:s/	money
/fy/	few	/fya:l/	elephants
/vy/	view	-	-
/my/	mute	/mya:l/	miles
/θr/	through	-	-
/θw/	thwart	-	-
/st/	start	/sta:r/	curtain
/sp/	spend	-	-
/sm/	small	/smi:n/	fat
/sk/	school	/sku:t/	silence
/sl/	slow	/sla:h/	arms
/sf/	sphere	/sfi:n/	a kind of meat
/sn/	snail	/sni:n/	years
/sw/	swell	/swa:ra/	bracelet
/ʃr/	shrink	/ʃru:r/	evils
/hy/	human	/hya:m/	Love

Three Segments

	<u>English</u>	<u>Arabic</u>
/spy/	spew	-
/sky/	skew	-
/skl/	sclerosis	-

	<u>English</u>	<u>Arabic</u>	
/spl/	splendid	-	
/skw/	square	-	
/spr	spring	-	
/skr/	skrew	-	
/str/	street	/stri:h/	relax

B. Final Consonant Clusters

Two Segments

	<u>English</u>	<u>Arabic</u>	
/ps/	perhaps	-	
/pt/	except	-	
/pθ/	depth	-	
/ts/	its	-	
/tθ/	eighth	-	
/ks/	six	/ʒaks/	opposite
/kt/	fact	/nakt/	looking for
/bd/	robbed	/ʒabd/	slave
/bz/	cabs	/xubz/	bread
/nθ/	pinch	-	
/ŋd/	longed	-	
/ŋk/	think	-	
/ŋθ/	length	-	
/ŋz/	things	-	
/lt/	difficult	/tult/	third
/ls/	else	/fils/	coin
/lf/	self	-	

	<u>English</u>	<u>Arabic</u>	
/lp/	help	-	
/rn/	barn	/ħrn/	horn
/rl/	girl	-	
/rg/	Lewisberg	-	
/rp/	harp	-	
/rf/	scarf	/ʔarf/	breaking
/rš/	harsh	/farš/	bed
/rʃ/	barge	-	
/θs/	baths	-	
/ðd/	bathed	-	
/dθ/	width	-	
/dz/	beds	-	
/gd/	tagged	-	
/gz/	rugs	-	
/ft/	left	/šuft/	I saw
/fθ/	fifth	-	
/fs/	laughs	/nafs/	the same
/vd/	lived	-	
/vz/	lives	-	
/md/	assumed	/ħamd/	praise
/mp/	camp	-	
/mt/	dreamt	/fhemt/	I understood
/mf/	nymph	-	
/mz/	comes	/ramz/	symbol

	<u>English</u>	<u>Arabic</u>	
/nt/	want	/bint/	girl
/ns/	since	/šins/	kind, sex
/nθ/	month	-	
/nd/	find	/hind/	India
/nz/	runs	/kanz/	treasure
/nʃ/	change	-	
/le/	health	-	
/ld/	cold	/šild/	skin
/lz/	fills	/ʔalz/	jumping
/lv/	twelve	-	
/lk/	milk	/šilk/	chewing gum
/lb/	bulb	/ʔalb/	heart
/lm/	elm	/siln/	peace
/ln/	kiln	-	
/lš/	welsh	/malš/	eating
/lč/	filch	-	
/lʃ/	bilge	-	
/rs/	course	/dars/	lesson
/rk/	work	/tark/	abjuration
/rt/	start	/mart/	wife
/rθ/	fourth	-	
/rč/	march	-	
/rd/	hard	/fard/	pistol
/rz/	years	/ʔarz/	cedar

	<u>English</u>	<u>Arabic</u>	
/rm/	term	/farm/	mince
/rb/	absorb	/sɔrb/	group
/rv/	observe	-	
/ɔz/	bathes	-	
/sp/	wasp	-	
/st/	most	/dist/	caldron
/sk/	ask	/misk/	perfume
/zd/	raised	-	
/ʃt/	finished	/ʃiʃt/	I lived
/ʒd/	rouged	/maʒd/	glory
/ɕt/	approached	-	
/ʒd/	judged	-	

Three Segments

	<u>English</u>	<u>Arabic</u>
/pɐs/	depths	-
/pts/	crypts	-
/pst/	lapsed	-
/tst/	Ritized	-
/tɐs/	eighths	-
/kts/	conflicts	-
/kst/	next	-
/dɐs/	widths	-
/fts/	lifts	-
/fɐs/	fifths	-

	<u>English</u>	<u>Arabic</u>
/lmd/	filmed	-
/lnd/	kilned	-
/ljd/	bilged	-
/lbz/	bulbs	-
/ldz/	holds	-
/mts/	tempts	-
/nčt/	pinched	-
/ndz/	sounds	-
/lmz/	elms	-
/lnz/	kilns	-
/rks/	works	-
/rkt/	worked	-
/rst/	first	-
/rts/	parts	-
/rdz/	words	-
/rnt/	aren't	-
/rnd/	formed	-
/rlz/	girls	-
/rmz/	terms	-
/rpt/	harped	-
/rft/	surfed	-
/rčt/	marched	-
/ršt/	marshed	-
/lts/	results	-

	<u>English</u>	<u>Arabic</u>
/mps/	camps	-
/mpt/	camped	-
/mft/	triumphed	-
/mfs/	nymphs	-
/nʃd/	arranged	-
/nts/	chintz	-
/nst/	sensed	-
/nθs/	months	-
/nzd/	bronzed	-
/ŋst/	amongst	-
/ŋθs/	lengths	-
/ksθ/	sixth	-
/dst/	midst	- -
/dzd/	adzed	-
/lks/	milks	-
/lpt/	helped	-
/lft/	elfed	-
/lʃt/	filched	-
/lθt/	welshed	-
/lps/	helps	-
/lθs/	tilths	-
/lfs/	Alf's	-
/lbd/	bulbed	-
/lvd/	delved	-

	<u>English</u>	<u>Arabic</u>
/lfe/	twelfth	-
/lst/	whilst	-
/rɒt/	earthed	-
/rnɐ/	warmth	-
/rld/	world	-
/rfs/	surfs	-
/rbd/	barbed	-
/rps/	harps	-
/rvd/	carved	-
/rʃd/	charged	-
/rbz/	barbs	-
/rnz/	turns	-
/rvz/	carves	-
/rgz/	bergs	-
/rɒs/	hearths	-
/skt/	risked	-
/sps/	wasps	-
/sks/	asks	-
/lkt/	milked	-

Four Segments

	<u>English</u>	<u>Arabic</u>
/ksts/	texts	-
/ksɒs/	sixths	-
/mpts/	tempts	-
/mpst/	glimpsed	-

	<u>English</u>	<u>Arabic</u>
/ntst/	chintzed	-
/ŋkts/	instincts	-
/ŋkst/	minxed	-
/ltst/	waltzed	-
/lkts/	mulcts	-
/lfθs/	twelfths	-
/rpts/	excerpts	-
/rtst/	quartzed	-
/rstst/	thirsts	-
/rldz/	worlds	-

The Consequence of the The Study

As a consequence of the preceding contrastive analysis, the writer finds that the possibilities of occurrence of consonant clusters are numerous in both English and Arabic, initially and finally. But many American English consonant clusters do not exist in Syrian Arabic, thus causing difficulty to the learner of American English.

Moreover, initial consonant clusters of three and four segments are frequent in American English where Syrian Arabic allows the occurrence of only two segments, initially and finally - except a few words as /ɪstri:t/ "I bought", /stri:h/ "relax" which occur in some colloquial Syrian dialects. Therefore, Syrian students, lacking the habit of producing initial and final clusters of more than two segments, tend to introduce the glottal stop /ʔ/ at the beginning of words of initial consonant clusters, and insert the sound /ə/ "schwa" in the middle of final and medial clusters. For example, they often tend to pronounce the word "spring" as /ɪsprɪŋ/ instead of /sprɪŋ/, and the word "asked" as /æskɪd/ instead of /æskt/.

The following contrastive study will serve to indicate, in as much detail as possible in a study of this nature, the clusters that constitute serious phonological problems for Syrian students.

Phonological Problems for Syrian Students

a) Initial Consonant Clusters of Two Segments

The following clusters of two segments present a pronunciation problem to Syrian students as a cluster and because one of the two segments does not exist in Syrian Arabic as a separate phoneme.

/pr/ pray

/pl/ play

/py/ pure

The English consonant /p/ presents a phonemic difference. It does not exist as a separate phoneme in Syrian Arabic. It is an allophone of the phoneme /b/ and it occurs only before voiceless consonants in a few Arabic words. Students tend to substitute /b/ for /p/ because it is the nearest sound.

Students should practice hearing and producing /p/ as a separate phoneme from /b/, and producing [p] in the beginning of unstressed syllables and in unreleased word final positions while producing [p^h] in the beginning of stressed syllables and in released word final positions. At the same time students should practice producing clusters in which one of the segments is /p/ without inserting a vowel.

Teaching materials should be provided in which the sound is practiced; explaining the point and manner of articulation of both sounds, indicating the difference in voicing.

Drills that include the clusters /pr, pl, py/ are repeated

until they are produced automatically.

/gr/ ground

/gl/ glad

The phoneme /g/ exists in some words in some Syrian dialects. For example, /gida/ "brave". It is a phoneme with a low functional load. Generally it presents a difficulty for Syrian students and they may confuse it with the phoneme /k/.

As for the phoneme /r/, students should be conscious not to trill it, a feature which is significant in Arabic /r/.

Drills should be provided in order to master retroflex /r/ as a single phoneme and within a cluster. The description of the position of the tip of the tongue where it is curved back towards the hard palate may help in overcoming the difficulty.

As for /l/, students should be aware not to confuse it with dark [ɫ]. Students should be familiar with the distribution of both.

In preparing teaching materials, the teacher should know that the main focus should be on sounds as elements in clusters; therefore, both clusters /gr/ and /gl/ should be practiced in isolated words, phrases and sentences.

/vy/ view

The phoneme /v/ exists in borrowed words only. Usually students tend to replace it by the nearest sound in their native sound system /f/.

Students should hear and produce /v/ as a separate phoneme from /f/. The element of voicing should be indicated as the only difference between the two phonemes /v/ and /f/.

When the isolated sound is mastered, care should be directed towards producing it in the sequence /vy/.

Special drills should be provided where the cluster is practiced in words, phrases and sentences.

/θr/ through

/θw/ thwart

The phoneme /θ/ exists only in literary Arabic. Syrian students tend to replace it by the nearest sounds /s/ or /t/. It presents a serious problem to Syrian students. It should be presented as a separate phoneme from /s/ and /t/.

The phoneme /r/ in the clusters /θr/ presents the same problem discussed previously.

The phoneme /w/ does not present a serious problem.

b) Initial Consonant Clusters of Three Segments¹

The following clusters of three segments present a pronunciation problem to Syrian students primarily because of the number of segments. Consonant clusters of three segments are not found in Syrian Arabic. Students here tend to introduce the glottal stop /ʔ/ at the beginning of words of initial consonant clusters, separating the sequence into two different syllables. For example, they often tend to pronounce the word "street" as [ʔistri:t] instead of [stri:t] and the word "splendid" as [ʔisplendid] instead of [splendid].

Some elements in these clusters constitute a more complex problem for Syrian students. They have to face the problem of pronouncing difficult sounds in addition to the problem of the cluster itself. Teachers have to face each problem separately but the main focus should be on the cluster itself.

/spy/	spew
/sky/	skew
/skl/	sclerosis
/spl/	splendid
/skw/	square
/spr/	spring
/skr/	screw
/str/	street

¹The writer was able to find only two words beginning with a consonant cluster of three segments: /ʔstri:t/, "I bought". /stri:h/, "relax".

The elements that may cause some difficulty beside the difficulty of the cluster are:

The clear [l], students should not confuse it with dark [ɫ].

The American retroflex /r/ should be recognized and practiced as such.

The cluster /sp/ may present some difficulty: students may confuse the phoneme /p/ with the phoneme /b/ and the phoneme /s/ may be assimilated to /z/. Therefore, the whole cluster /sp/ may be replaced by /zb/. For example, students may pronounce the word "spring" as [ʔizbrɪŋ] instead of [sprɪŋ].

c) Final Consonant Clusters of Two Segments

The feature of final consonant clusters of two segments exists in Syrian Arabic, and may not constitute a serious problem to Syrian students.

The following final consonant clusters constitute a problem because they do not exist in Syrian Arabic and because one segment or both segments are a pronunciation problem to Syrian students.

/dθ/	width	/ln/	kiln
/gd/	tagged	/tθ/	eighth
/gz/	rugs	/ps/	perhaps
/čt/	approached	/pt/	except
/jd/	judged	/pθ/	depth
/nč/	pinch	/ŋd/	longed
/lč/	filch	/ŋk/	think
/vd/	lived	/sp/	wasp
/vz/	lives	/θz/	bathes
/rg/	Lewisburg	/ŋθ/	lengths
/rv/	observe	/ŋz/	things
/rč/	march	/lp/	help
/lv/	twelve	/lj/	bilge
/rθ/	fourth	/rp/	harp
/fθ/	fifth	/rj/	barge
/nθ/	month	/rl/	girl
/lθ/	health	/mf/	nymph

/zd/ raised
/ts/ its
/dz/ beds

The consonant clusters /ts, dz, mf, ln, rl, gd, gz/ may not constitute a complex problem for Syrian students. The voiced /d/ and /z/ in the clusters /gd/ and /gz/ may help students to produce /g/ instead of /k/.

Attention should be drawn to the articulation of the phonemes /t/ and /d/ which are phonetically different from the Arabic phonemes /t/ and /d/. English /t/ and /d/ are alveolar; they are articulated with the tip of the tongue against the tooth-ridge, whereas Arabic /t/ and /d/ are dental and they are articulated with the blade of the tongue against the upper teeth themselves, not behind the upper teeth. The consonant clusters /čt, ʃd, nč, lč, vd, vz, rg, rv, rč, nē, lē, lv, rē, ps, pt, pē, ʒd, ʒk, sp, ōz, ōd, ʒē, ʒz, lp, lj, rp, rj/ include one segment that does not exist in Syrian Arabic or that is phonetically different from its equivalent in American English.

Attention should be drawn to the articulation of the following phonemes:

/p/ should be heard and produced as a different phoneme from /b/

Attention should be drawn to the distribution of the allophones of /p/:

[p] should be produced in the beginning of unstressed syllables and in unreleased word final positions.

[p^h] should be produced in the beginning of stressed syllables and in released word final positions.

/ʕ/, /j/ do not exist in final positions in colloquial Arabic. They present a serious problem when they are combined with another phoneme in a cluster. The difficulty is located in producing them in word final position. The phoneme /j/ may be replaced by /ʒ/ the nearest sound.

/θ/, /ð/ exist only in literary Arabic. They can be well mastered by those who are familiar with the sounds of literary Arabic. The phoneme /θ/ may be confused with the phonemes /t/ and /s/, because in spoken Arabic, students usually replace the classical phoneme /θ/ by /s/ or /t/. For example, they pronounce the word /θa:ni/ "second" as /ta:ni/ or /sa:ni/. The phoneme /ð/ may be confused with the phoneme /d/ and /z/. Both phonemes should be practiced and produced as different phonemes from /t/, /s/ or /d/ /z/.

Both are articulated with the tip of the tongue placed between the slightly opened teeth. /θ/ is voiceless while /ð/ is voiced.

/v/ should be heard and produced as a separate phoneme from /f/. It exists only in a few borrowed words.

Therefore, students tend to replace it by /f/.

Both /v/ and /f/ have the same point and manner of articulation, but /v/ is voiced while /f/ is voiceless.

/ŋ/ does not exist in Syrian Arabic. Students may replace it by /n/, the nearest sound, or by the cluster /ng/. They should practice hearing and producing it as a separate phoneme from /n/.

d) Final Consonant Cluster of Three Segments

The following consonant clusters present a serious problem to Syrian students because final clusters of three segments do not exist in Syrian Arabic.

Students may insert the sound /ə/ "schwa" in the middle of the final clusters. For example, they may pronounce the word "sixth" as /sikseə/ instead of /siksə/.

The problem is classified into two groups; (1) simple clusters that include segments familiar to Syrian students and whose main problem is the cluster of three segments itself. (2) complex clusters that include segments that have no equivalent in Syrian Arabic and present a double problem, that of the cluster and the problem of difficult phonemes that should be mastered individually and within the cluster.

Simple problems

Complex problems

/tst/	Ritized	/pəs/	depths
/kts/	conflicts	/təs/	eighths
/fts/	lifts	/dəs/	widths
/mft/	triumphed	/fəs/	fifths
/nfs/	nymphs	/mps/	camps
/nts/	chintz	/mpt/	camped
/nst/	sensed	/njd/	arranged
/nzd/	bronzed	/nəs/	months
/dst/	midst	/ɲst/	amongst
/zt/	adzed	/ɲəs/	lengths

Simple problems

/lks/ milks
/lkt/ milked
/lft/ elfed
/lfs/ Alf's
/lbd/ bulbed
/lmd/ filmed
/lnd/ kilned
/lbz/ bulbs
/ldz/ holds
/mts/ tempts
/ndz/ sounds
/lmz/ elms
/lnz/ kilns
/lts/ results
/lst/ whilst
/skt/ risked
/sks/ asks
/lšt/ welshed

Complex problems

/ksθ/ sixth
/lpt/ helped
/lps/ helps
/lθs/ tilths
/lvd/ delved
/lʃd/ bilged
/rps/ harps
/rvd/ carved
/rʃd/ charged
/rθs/ hearths
/sps/ wasps
/rvz/ carves
/rkt/ worked
/rst/ first
/rts/ parts
/rdz/ words
/rnt/ aren't
/rnd/ concerned
/rmd/ formed
/rlz/ girls
/rms/ terms
/rft/ surfed
/ršt/ marshed
/rld/ world

Simple problems

Complex problems

/rfs/	surfs
/rbd/	barbed
/rks/	works
/rbz/	barba
/rnz/	turns
/rgz/	burgs
/rɔ̃t/	marched
/rmθ/	warmth
/lɔ̃t/	filched
/nɔ̃t/	pinched
/lfe/	twelfth
/rɛt/	earthed

e) Final Consonant Clusters of Four Segments.

The following final clusters of four segments are classified into two groups: simple clusters are those that include familiar segments and whose main problem is the cluster of four segments, and complex clusters that include segments which do not exist in the Syrian Arabic sound system. Complex clusters present a double problem, that of the cluster and the problem of difficult phonemes that should be mastered individually and within the cluster:

<u>Simple problem clusters</u>		<u>Complex problem clusters</u>	
/ksts/	texts	/ksθs/	sixths
/ltst/	waltzed	/ŋkst/	minxed
/lkts/	mulcts	/lfθs/	twelfths
/rtzt/	quartzed	/mpts/	tempts
/rstst/	thirsts	/mpst/	glimpsed
/rldz/	worlds	/rpts/	excerpts
/ntst/	chintzed	/ŋkts/	instincts

The phonological difficulties that can be traced in the preceding clusters is the occurrence of the phonemes /p, ŋ, θ, v, ʃ, r, l, t, d/.

/t/, /d/ are alveolar in American English rather than dental as in Syrian Arabic.

/l/ has two allophones in American English while in Syrian Arabic clear /l/ and dark /L/ are two separate phonemes.

Students should not confuse the two allophones and should know where to use each one.

/r/ The retroflex /r/ is a voiced alveolar glide where Arabic /r/ is produced by successive taps of the tip of the tongue against the back of the upper front teeth.

/p/ This phoneme should not be replaced by the phoneme /b/

/θ/ exists in literary Arabic and should not be replaced by /s/ or /t/.

/ʃ/ presents a difficulty in final positions. Students should not confuse it with /ʒ/.

/ŋ/ does not exist in Syrian Arabic. It should be recognized and produced as a different phoneme from /n/

/v/ does not exist in Syrian Arabic and it should be produced as a different phoneme from /f/.

In the following chapter sample lessons are prepared in which some problem clusters are presented.

CHAPTER III

EDUCATIONAL IMPLICATION AND APPLICATION

Introduction

Having predicted problem clusters that may present difficulty for Syrian students, the writer devotes this chapter to the preparation of teaching materials to help to overcome some pronunciation problems and to provide teachers with models for use in similar situations.

The procedure is based on the assumption that "a person has learned a foreign language when he has mastered the sound system, that is, when he can understand the stream of speech and achieve an understandable production of it."¹

Accordingly, in order to achieve mastery of the sound system of a foreign language, the student is expected to understand sounds and sound sequences before he produces them -- a procedure adopted from the way we learned our native language. Step by step we acquired a complete mastery of it; by imitating others who speak it; by memorizing and repeating it until it became automatic.

The approach involves habit formation; once a habit is formed, it is difficult to break it. But "if the ear training is neglected during the elementary stage, one will replace

¹Fries, loc. cit., p. 3.

foreign sounds by native ones and insert intrusive sounds into the words of the language he is learning; he will become unable to receive any but eye impression."¹

Habits in learning new sounds can be achieved by ear-training in which all material is presented in its oral form. Oral drills are prepared in a way that unfamiliar sounds are presented and contrasted with familiar sounds. With constant repetition and practice the ear will be sharpened and trained to recognize unfamiliar sounds. But since language habits are developed from childhood, it is not easy to produce the unfamiliar sounds of a foreign language. The muscles of one's speech organs are trained to produce only the sounds of his native language. They are not trained to articulate foreign sounds, even if the ear has been trained to recognize them. But phoneticians emphasize that with constant training, speech organs can be made to produce various sounds, even those that are not found in the native language. Developing a skill requires constant drill, "more frequent but shorter practice periods.....frequent drilling keeps the material fresh in mind and minimizes forgetfulness."²

Constant training with short explanations of how and where the foreign sounds are articulated, pointing the dif-

¹Harold E. Palmer, The Principles of Language Study (London: George G. Harrop Company, Ltd. 1928), p. 10.

²Morton J. Gordon and Helene H. Wong, A Manual For Speech Improvement (Englewood Cliffs: Prentice-Hall, Inc., 1961), p. xii.

ference between these sounds and the sounds of the native language, will help students to be conscious of the new articulations.

We conclude, that the mastery of the spoken form of the foreign language involves the accurate pronunciation of sounds, which can be achieved through mimicry, memorization and repetition.

Any teaching material should take into consideration the sound system of the learned language as well as the native language. The sound system of any language includes two features: The segmental phonemes and the supersegmental phonemes. The latter are patterns that are superimposed over the sounds and give an additional meaning to sentences; stress, pitch and intonation. They are necessary for the learner in order to be understood by the native speakers of a language as well as to be able to use the foreign language in such a way that the native speakers of it consider him as one of them. In preparing the following lesson plans, included in this chapter, some considerations were given to the suprasegmental phonemes, especially intonation; for teaching would be meaningless without it.

The procedure followed in the lesson plan includes two main steps: recognition and production. Recognition involves listening to unfamiliar sounds-clusters-contrasted with familiar ones and trying to recognize the difference. Production involves mimicry and repetition until the students are able to produce

problem clusters automatically and unconsciously. It is a procedure, that has proved to be successful in teaching foreign languages and has been employed by many institutions.¹ The writer, convinced of the successful achievements of such a procedure has adopted it as presented by Strain in Language Learning, under the title "Teaching a Pronunciation problem."² The other references which have been of equal value are English Pronunciation; Exercises in Sound Segments, Intonation and Rhythm, by Lado and Fries³, and American English Pronunciation Practice, by Yorkey⁴. The writer has made use of the various above techniques and adapted them for teaching problem clusters.

In the case of teaching problem clusters, it is assumed that the students have mastered single sounds and the focus is on the production of the sequences that do not exist in the native language and thus present a pronunciation problem. For the Syrian students, this is usually the insertion of a vowel to break up the unfamiliar cluster into two syllables.

¹Frederick B. Agard and Harold B. Dunkel, An Investigation of Second-Language Teaching (New York: Ginn and Company, 1948), pp. 159 - 245.

²Jeris F. Strain, "Teaching a Pronunciation Problem," Language Learning, XII (No. 3, 1963), 231.

³Robert Lado and Charles C. Fries, English Pronunciation: Exercises in Sound Segments, Intonation and Rhythm (Ann Arbor: University of Michigan Press, 1957), pp. 5-39.

⁴Richard Yorkey, American English Pronunciation Practice (Beirut: mimeographed at A.U.B., 1965)

The teaching materials have been prepared with Syrian students in mind. Students of the second grade of English in secondary schools, who are supposed to be familiar with the English sound system and basic structural patterns, but still need much practice to acquire fluency and accuracy in speech.

a) The Organization of the Lesson Plans

Two sample lesson plans were prepared to deal with two consonant cluster problems. One lesson plan deals with the initial consonant cluster /pr/ which was expected by the contrastive study to be a problem cluster for the Syrian native speaker because it does not exist in his sound system as a cluster, and it consists of one sound /p/ that is an allophone in Syrian Arabic and /r/ that constitutes a phonetic problem to Syrian students. The other lesson plan deals with the final cluster /ŋz/ that also does not exist in Syrian Arabic, and that consists of the sound /ŋ/ that does not exist in the sound system of Syrian Arabic constituting a serious problem for Syrian students. The problem in the cluster /pr/ and /ŋz/ is a complex one, first because the cluster itself does not exist in the Syrian sound system, and second because the cluster consists of sounds that constitute a serious problem to Syrian students when they are in isolation and not an element of the cluster. The third lesson plan deals with clusters of two, three or four segments. The pronunciation problem, here, may be a simple one; a cluster problem only. The clusters consist of familiar sounds that do not constitute a problem in pronunciation but the difficulty is presented when trying to pronounce them in combination as one unit or it may be a complex one where the difficulty exists in the cluster itself as well as in sounds that constitute a

pronunciation problem when they are in isolation. The procedure is different from the previous lesson plans because the aim is not to concentrate on one problem cluster but to include as many clusters as possible, in phrases and sentences, and to drill the students to produce the combination of sounds, of two, three or four segments, fluently and accurately.

Each of the first two lesson plans is divided into three parts: presentation, recognition and production. Each part proceeds through several steps. Some steps could be eliminated depending on the time devoted for pronunciation. In general, fifteen or twenty minutes of practice a day, six times a week, is enough to develop the skill. Students benefit more when the practice is frequent but shorter. Even with this limited time, variety in techniques should be a dominant factor in order to keep students alert and interested in repetition which may seem childlike and dull if the teacher is not competent enough to provide enthusiasm and activity.

The first part of the lesson is devoted to introducing the unfamiliar cluster and contrasting it with the familiar one. The teacher calls the attention of the students to the contrast. He identifies each cluster with a symbol and writes it on the blackboard. Then he selects a minimal pair that presents the contrast and calls the attention of the students to it. The students' role is only to listen and to recognize the difference. Then a list of minimal pairs is presented by

the teacher; this part is the recognition one in which the students only listen while the teacher presents minimal pairs followed by other items that include both clusters. At this stage, the teacher may test the students' ability to recognize the problem cluster by a different kind of drill. The students are tested in chorus as well as individually. This stage ends with giving a short explanation of how single sounds of the cluster are articulated and how the position of the tongue changes when producing the cluster of two segments or more. Explanations should be as simple and short as possible in order to be understood by students.

The production part includes mimicry and repetition. This part begins with a type of drill in which students have to respond to the teacher pronouncing items, changing the cluster to the opposite one. If the teacher says, for example, "prey" they would say "bray". Then, the teacher asks the students to repeat words, phrases and sentences to provide flexibility. The phrases and sentences are organized in a manner that the familiar cluster is presented first, then the unfamiliar one, then both clusters are mixed in one phrase or sentence.

In practicing these phrases and sentences certain principles should be kept in mind:

- 1) Meaningful items should always be used, though it is a hard task to provide clusters in the target language.

Nonsense words may be used but not with phrases and sentences.

- 2) Unison drills should precede individual ones.
- 3) The same falling intonation should be kept throughout the practice.

To check the students' perception, a drill is organized in which they respond with "different" and "same," according to the two sentences presented. The only difference in these phrases and sentences should be the target clusters.

Other drills may be used for reinforcement and practice. These exercises enrich the students' stock of vocabulary as well as drill them in structural patterns besides the mastery of the target clusters which are practiced until they are produced automatically and unconsciously.

The lesson ends with a short dialogue that serves to make the lesson meaningful. It combines the clusters that have been practiced and provides meaningful material which can be used outside the classroom.

Lesson Plan I

The initial American English consonant cluster /pr/ constitutes a phonemic and a phonetic problem for Syrian students because it is composed of two problem sounds.

The sound /p/ presents a phonemic difference. It does not exist as a separate phoneme in Syrian Arabic. It is an allophone of the phoneme /b/ and it occurs only before voiceless consonants in a few Arabic words. The students usually tend to transfer the nearest sound in their native language, /b/, wherever they are supposed to produce the English sound /p/.

The sound /r/ presents a phonetic problem. The American English /r/ is retroflex. It is articulated by curling the tongue up without touching the top of the mouth. Syrian students usually tend to trill the /r/.

Moreover, the consonant cluster /pr/ does not occur in the Syrian native language as a sequence and thus constitutes a double difficulty.

Concentration should be on both the phonemic and the phonetic side of the problem. But the main focus should be on the production of the cluster without inserting a vowel and specially "schwa".

Consonant sequences are included in words, phrases and sentences. The teacher provides the model, and he may use a "backward build up" to facilitate pronunciation. This

procedure is generally followed in repeating long sentences, in order to maintain natural intonation and unison repetition. Teachers are advised "to break sentences into natural phrase groupings first....Always start from the last word or phrase group of the sentence and work forward to the first."¹

¹Yorkey, loc. cit., p. xiv

1) Attention Pointer

The teacher calls the students' attention to the minimal contrast between the familiar cluster and the unfamiliar one. Each cluster may be identified by a symbol. /br/ and /pr/ are appropriate and should be written on the blackboard. /brey/ and /prey/ may be chosen to present the minimal contrast between /br/ and /pr/ and repeated several times while students listen only. Pictures may be used to demonstrate the difference in meaning.

2) Focus Attention

1. The students listen to the teacher pronouncing words that contain the familiar cluster /br/.
2. The students listen to the teacher pronouncing words that contain the unfamiliar cluster /pr/. The teacher points to the symbol attached to each set of words.
3. The teacher pronounces the words in contrast pointing to the appropriate symbol each time. The students listen to the contrast.

(br)

bray

bride

braise

brim

brig

(pr)

pray

pride

praise

prim

prig

3) Sharpen Recognition

The students' ability to recognize the difference between /br/ and /pr/ is tested by attaching a number to each cluster. The students have to respond with (1) or (2) while the teacher pronounces the minimal pairs at random. Words that include the target clusters but not minimal pairs may be used. The following items may be used beside the minimal pair.

pretty	prison	brush
brute	price	print
brown	bread	priest

4) Generalization

Short explanations may be useful. Students could be made aware of the shape of the lips, the position of the tongue and the change that happens when shifting from one sound to another. In both /pr/ and /br/ the lips begin closed to produce the sound /p/ then the lips open and the tongue curls up in the direction of the top of the mouth without touching it. The only difference is that the /b/ in /br/ begins voiced while the /p/ in /pr/ is voiceless.

5) Develop Flexibility

1. The teacher asks the students to repeat the minimal pairs, changing the cluster to the opposite one.

bray	braise	pray	brim
prig	brig	prim	praise

2. The teacher asks the students to repeat phrases with the familiar cluster /br/, then phrases with the unfamiliar cluster, then phrases that contain both clusters. Falling intonation should be kept throughout the exercise.

a brave Britisher	a bright bracelet
a brown brow	a brunette bride
a broken branch	a Brazilian breakfast
a proud prince	a pretty prize
a pretty princess	a printed program
a private prayer	a praying priest
a brave priest	
a proud pride	
a British proverb	
a bright president	

3. The teacher asks the students to repeat the following sentences. The same order is kept, from the familiar to the unfamiliar, then both. A backward build up may be used to facilitate the pronunciation of long sentences. The teacher should precede from choral to individual responses. He starts from the end of the sentence as follows:

brown
is brown
bread is brown
Brazilian bread is brown

brown

and brown

broad and brown

is broad and brown

His brow is broad and brown.

1. He brought bread for breakfast.

The bride broke her bracelet.

Brazilian bread is brown.

Betty's brow is broad.

2. We print prose in the press.

He prefers to practice his principles.

Priests preach in prisons.

Presidents pray in private.

3. The present is a precious bracelet.

The British pretend to be brave.

The British president broke his promise.

The Brazilian bride prepared bread.

4. Check Perception

To test recognition the students respond with "same" or "different".

Who is praying?

Who is braying? (different)

He praised it.

He praised it. (same)

He braised it.

He praised it. (different)

This is a brow.

This is a prow. (same)

5. Drill

The students complete the following sentences.

The teacher uses pictures as a cue for responses, making the exercise meaningful.

1. It is a _____

brow

brush

prize

bracelet

prison

prow

2. He is a _____

priest

bridegroom

brother

~~prisoner~~

prince

president

These exercises serve to enrich the students' stock of vocabulary and help them master patterns besides the problem cluster. The attention of the students is shifted from the problem cluster, which makes them produce the clusters automatically and unconsciously.

6. A Short Dialogue

The lesson ends with a short dialogue that includes words with the target cluster. This is useful in reinforcing the target cluster and encouraging com-

munication, for communication is the goal of language studies.

A: Look! doesn't she look pretty?

B: She has a pretty profile; but...

A: But what! Don't you like her bronze tan?

B: Yes, but I don't like her proud look. I prefer timid brides.

Lesson Plan II

The final consonant cluster /ŋz/ is one of the most difficult pronunciation problems for Syrian students. It does not exist in Syrian Arabic as a cluster and the phoneme /ŋ/ does not exist at all. Students usually replace it by /n/ or /ŋg/.

The students should recognize the phoneme /ŋ/ as a different phoneme from /n/. Then he should practice /ŋz/ without inserting a vowel or replacing it by a sequence of three segments /ŋgz/.

The cluster /ŋz/ is contrasted with /nz/, the cluster which the students tend to substitute.

1) Attention Pointer

The contrast /nz/ and /ŋz/ is used to indicate the difference between the familiar cluster and the unfamiliar one. The symbols should be written on the blackboard to draw the attention of the students to the contrast. Then the teacher repeats the minimal pairs /sɪnz/ and /sɪŋz/ to indicate the contrasted clusters /nz/ and /ŋz/, while the students are listening.

2) Focus Attention

1. The students listen to the teacher pronouncing words that contain the familiar cluster /nz/.
2. The students listen to the teacher pronouncing words that contain the unfamiliar cluster /ŋz/. The teacher points to the symbol attached to each set of words.
3. The teacher pronounces the words in contrast pointing to the appropriate symbol each time. The students listen to the contrast.

(nz)

sins

wins

kin's

dins

tons

(ŋz)

sings

wings

kings

dings

tongues

3) Sharpen Recognition

The students' ability to recognize the difference between

/nz/ and /ŋz/ is tested by attaching a number to each cluster. The students have to respond with (1) or (2) while the teacher pronounces the minimal pair at random. Words that include the target clusters but not minimal pairs may be used. The following items may be used besides the minimal pairs.

bangs	rings	brings
coins	things	springs
chins	hens	chains

4) Generalization

Short explanations may be useful. Students could be made aware of the position of the tongue and the change that happens when shifting from one sound to another. In /nz/ the tip of the tongue is raised to touch the teeth-ridge, the soft palate is lowered so that the air passes through the nose; the vocal cords vibrate so that voice is produced. In /ŋz/ the back of the tongue is raised to touch the soft palate, which is lowered so that the air passes through the nose; the vocal cords vibrate so that voice is produced.

5) Develop flexibility

The production of the cluster is attained through practice. The teacher serves as a model. The students repeat after him in unison then, individually. A falling intonation should be kept throughout the practice.

1. The students repeat first the minimal pairs. Items that include either /nz/ or /ŋz/ may be used besides the minimal pairs.

songs	pins	greens
things	springs	gangs
pens	rings	moons

2. The students repeat the following minimal pairs replacing the cluster by the opposite one.

sins	kin's	dons	kings
wings	tongues	dings	wins

3. The students repeat the following phrases, beginning with the familiar and ending with both of them mixed.

The teacher always provides the model.

lion's bones	person's plans
women's patrons	Indians' horns
queen's reins	raven's bones
king's songs	gang's songs
king's things	gang's gongs

The Indian's songs

The queens' tongues

The ravens' wings

The kings' thrones

The kings' crowns

4. Sentences are repeated according to the same order, from the known to the unknown. After sufficient practices, sentences may be repeated at random.

It rains in the plains.

She dines at inns.

Lions are shot with guns.

Lawns are full of greens.

It belongs to the kings.

She clings to the gangs.

She sings in the evenings.

It rings ding dongs.

Kings have their sins.

Nuns' longings are divine.

Ravens' wings are long.

Womens' songs are long.

6) Check perception

Students are asked to respond with "same" or "different" according to sentences.

He sins.

He sings. (different)

They are tons.

They are tongues. (different)

They are kings.

They are kings. (same)

They are wings.

They are wings. (same)

7) Drill

Students practice by means of substitution drills. Patterns as well as vocabulary items are reinforced, besides the new clusters. Pictures are used wherever possible.

1. They are _____

queens	lions
songs	gangs
gongs	kings

2. It _____

stings	sings
clings	sins
runs	bangs

8) A short Dialogue

The lesson ends with a short dialogue that includes the target cluster. This is useful in reinforcing the target cluster and encouraging communication, for communication is the goal of language studies.

A: Did you listen to Judy's songs?

B: Yes, she still sings at the King's Hall, doesn't she?

A: Yes, she longs to be a first-grade singer.

B: She clings to a hopeless dream.

Lesson Plan III

Consonant clusters that do not exist in the native language are not the only difficulty that Syrian students face. Some sounds may be well mastered by the students when they occur in isolation, but they create a difficulty that needs to be overcome when they occur in a sequence of sounds. The students face the problem of pronouncing clusters of three or four segments which are familiar to them individually but constitute a difficulty when they are combined together. Here more than in any other place they are tempted to insert the "schwa" to facilitate the pronunciation, dividing the one cluster into two syllables.

In order to help the students not to slip back to their old habit of inserting a vowel, much practice should be provided and special exercises should be prepared. Consonant sequences should be included in words, phrases and sentences.

In the previous lesson plans, the writer concentrated on one problem cluster that had been classified as a complex cluster because it does not exist in Syrian Arabic and because it consists of segments that are unfamiliar to Syrian students. In the following lesson plan a new procedure is followed because all varieties of sequences are practiced together. Special care is given to combinations of four or five segments when they occur in two successive words. Many clusters of three or four segments are omitted because of their low frequency, taking into consideration the level of the students for whom the teaching materials

are prepared.

This procedure can be adopted when there is not much time to practice each problem cluster alone. Besides, the previous procedure cannot be adopted for all problem clusters because some are rare in the target language and do not provide enough material for a lesson plan.

In this lesson plan, the writer has tried to provide enough material to practice a variety of clusters in words, phrases and sentences. The teacher can go over some of them at the beginning of each lesson period, making use of the main principles of the oral approach which involves mimicry, repetition and practice.

Lesson Plan III

Part One

1) a. Listen while the teacher pronounces the following words. In each word the first and second sounds are consonants. The first is the sound /p/ and the second is either /r, l/ or /y/.

b. Repeat after the teacher and try to imitate his pronunciation. You should be careful not to confuse the sound /p/ with /b/. Try to pronounce the two consonants without any vowel before or between them.

/pr/	/pl/	/py/
prove	place	pure
print	play	pew
prison	plain	puce
press	plan	pule

2) a. Listen while the teacher pronounces the following words. The first and second sounds are consonants. Notice that the first sound in the first column is /k/, and the first sound in the second column is /g/.

b. Repeat after the teacher and try to imitate his pronunciation. You should be careful not to confuse the sound /g/ with /k/. Pronounce the sound /g/ with less force than /k/. Try to pronounce the words without inserting any vowels before or between the consonants.

/kr/	/gr/
crow	grow
crave	grave
creed	greed
crate	great

- 3) a. Listen while the teacher pronounces the following words. In each word the first and second sounds are consonants. Notice that the sound /θ/ is pronounced by putting the tongue between the teeth and pushing the breath out the lips. Try not to confuse it with /ð/. Notice that you hear a hissing sound, not a buzzing sound. It is the only feature by which you can distinguish the two sounds.
- b. Repeat after the teacher and try to imitate his pronunciation. You should be careful not to confuse the sound /θ/ with /s/ or /ð/. Remember that the sound /θ/ exists in literary Arabic, but you usually replace it by /s/ in your daily speech. Try to pronounce the words without inserting any vowel before or between the consonants.

/θ/

through

three

thrill

throw

4) a. Listen while the teacher pronounces the following words. The first and second sounds are consonants. Notice that the sound /p/ after /s/ is pronounced without a puff of air.

b. Repeat after the teacher and try to imitate his pronunciation. Be careful. Do not confuse the sound /p/ with the sound /b/. Try to pronounce the words without inserting any vowel before or between the consonants.

/sp/

Spain

spark

speed

spell

5) a. Listen while the teacher pronounces the following words. Each word begins with three consonants. Notice how the teacher pronounces the sound /p/ after the sound /s/, in the first two columns, without a puff of air.

b. Repeat after the teacher and try to imitate his pronunciation. Try to pronounce the words without inserting any vowel before or between the consonants. The words beginning with the three sounds /str/, in the fourth column do not present a difficulty for you. You often pronounce them when you say the Arabic word /stri:h/ "relax". Try to pronounce the other words with the same smoothness as you do the Arabic word.

/spr/	/spl/	/skr/
spring	splash	scream
spray	splendid	screen
spread	split	script
sprinkle	spleen	screw

6) a. Listen while the teacher pronounces the following words. Each word ends with two consonants. The consonants are either /ŋk, zd/ or /gz/. Notice that all the sounds are familiar to you.

b. Repeat after the teacher and try to imitate his pronunciation. Be careful. Do not confuse the sound /g/ with /k/. Try to pronounce the words without inserting any vowel between the last two consonants.

/ŋk/	/zd/	/gz/
think	raised	bags
link	gazed	dogs
ink	teased	digs
sink	pleased	figs

7) a. Listen while the teacher pronounces the following words. Each word ends with two consonants. The consonants are either /mp, pt/ or /ps/. Listen carefully. Try not to confuse the sound /p/ with the sound /b/.

b. Repeat after the teacher and try to imitate his pronunciation. Try to pronounce the words without inserting any vowel between the last two consonants.

/mp/	/pt/	/ps/
camp	kept	perhaps
lamp	stopped	tops
tramp	crept	laps
jump	attempt	caps

- 8) a. Listen while the teacher pronounces the following words. Each word ends with two consonants. The consonants are either /jd/ or/nj/. Listen carefully. Try not to confuse the sound /j/ with the sound /z/.
- b. Repeat after the teacher and try to imitate his pronunciation. Try to pronounce the words without inserting any vowel between the last two consonants.

/nj/	/jd/
change	edged
arrange	judged
range	raged
avenge	badged

- 9) a. Listen while the teacher pronounces the following words. Each word ends with two consonants. The consonants are either /nč/ or /čt/. Listen carefully. Try not to confuse the sound /č/ with the sound /š/.
- b. Repeat after the teacher and try to imitate his pronunciation. Try to pronounce the words without inserting any vowel between the last two consonants.

/t/	/n/
matched	pinch
scratched	bench
watched	branch
stretched	lunch

- 10) a. Listen while the teacher pronounces the following words. Each word ends with two consonants. The consonants are either /vz/ or /vd/. Listen carefully.
- b. Repeat after the teacher and try to imitate his pronunciation. Try to pronounce the words without inserting any vowel between the last two consonants.

/vz/	/vd/
believes	lived
lives	believed
arrives	arrived
olives	loved

- 11) a. Listen while the teacher pronounces the following words. Each word ends with two consonants. The consonants are either /ŋz/ or /rθ/. Listen carefully. Try not to confuse the sound /ŋ/ with the sound /g/ or the sound /θ/ with the sound /s/.
- b. Repeat after the teacher and try to imitate his pronunciation. Try to pronounce the words without inserting any vowel between the last two consonants.

/ŋz/	/rθ/
sings	fourth
gangs	birth
tongues	mirth
brings	north

- 12) a. Listen while the teacher pronounces the following words. Each word ends with three consonants. Listen carefully how the teacher pronounces the last three consonants smoothly.
- b. Repeat after the teacher and try to imitate his pronunciation. Try to pronounce the words without inserting any vowel between the last three consonants.

/ndz/	/sts/	/rdz/	/rlz/
defends	hosts	beards	girls
lends	costs	cards	curls
hands	thirsts	yards	pearls
brands	feasts	swords	snarls
/rts/	/nts/	/ldz/	/kts/
concerts	comments	colds	instincts
comforts	consonants	builds	insects
deserts	accidents	yields	corrects
charts	cents	fields	directs

/sks/	/mpt/	/nst/	/ŋkt/
asks	jumped	danced	banked
desks	camped	glanced	inked
masks	tempt	sensed	linked
dusks	prompt	fenced	winked

13) a. Listen while the teacher pronounces the following words.

Each word ends with four consonants. Listen carefully, how the teacher pronounces the last four consonants smoothly.

b. Repeat after the teacher and try to imitate his pronunciation. Try to pronounce the words without inserting any vowel between the last four consonants.

/rldz/	/lfθs/	/ltzd/	/rstz/
worlds	twelfths	waltzed	thirsts
/ksts/	/ksθs/	/mpts/	/mpst/
texts	sixths	tempts	glimpsed

Part Two

1) a. Listen while the teacher pronounces the following phrases.

Each phrase consists of two words; the first ends with one or two consonants and the second begins with two consonants. Notice that the four consonants of the two words should be pronounced smoothly as one unit without inserting any vowel between them.

b. Repeat after the teacher and try to imitate his pronun-

ciation, Be careful. Do not begin the second word with any vowel.

hard steel	wide screen	cold drink
good store	small script	nice dreams
seven sticks	loud scream	short dress
film stars	hard screw	long drive
mixed cream	dark green	wide space
gold crown	short grass	good sport
silver cross	vast ground	silver spoon
black crow	deep groan	long speech
dark sky	cold spring	good price
tight skirt	hair spray	proud prince
soft skin	white sprite	short prayer
good scheme	nice spread	tall priest

- 2) a. Listen while the teacher pronounces the following phrases. Listen how the teacher pronounces the words smoothly.
- b. Repeat after the teacher and try to imitate his pronunciation. Be careful. Do not begin the second word with a vowel.

horse flesh	sound plan
physics class	soft drink
field trip	warm spring

town square
church clock
science class
gold clock
art class
heart blood
town traffic
world spirit

brown dress
loud speaker
modern press
soft dreams
old friend
first floor
short skirt
little star

Part Three

- 1) a. Listen while the teacher pronounces the following sentences. Notice that the words begin or end with two or three consonants.
- b. Repeat after the teacher and try to imitate his pronunciation. Be careful. Do not insert any vowel before or between the consonants. Keep the same falling intonation. Start with unison drills then individual ones. Repeat after the teacher when he starts from the end.

The forest trees are dark green.

The girl's dress is dark blue.

The French stars have short skirts.

The students' practice is next week.

The short stockings are dark grey.

The girl's smile is the best prize.

The big store is on Main street.

The birds' wings are dark blue.

The last play is the best play.

The gold star is on the dark dress.

The wicked brother has brown gloves.

The modern press has small script.

The art class has the seventh quiz.

The linguistics class has phonetics drills.

The physics student has seven sticks.

The sports player was dark brown.

The actor's dress was dark green.

The last breakfast was hard bread.

The red strawberries are sugar sweet.

The green grass is near the town square.

- 2) a. Listen while the teacher pronounces the following sentences.
- b. Repeat after the teacher and try to imitate his pronunciation. Keep the same falling intonation. Be careful. Do not insert any vowel before or between the consonants.

Turn left.

Attend class.

Ask questions.

Count six.

Work hard.

Change places

Try hard.

Drink milk.

Don't cross streets.

Don't expect much.

Don't waste time.

Don't spoil things.

Don't work hard.

- 3) a. Listen while the teacher pronounces the following phrases. The purpose of this exercise is not only to enable you to pronounce sequences but to help you blend sounds in order to make your speech smooth without inserting a glottal stop at the beginning of words that start with vowels - a feature you transfer from your native language. Notice how the teacher blends the sounds together so <and> is reduced to a single sound /n/.
- b. Repeat after the teacher and try to imitate his pronunciation. Remember that <and> is pronounced as /n/. Avoid inserting the glottal stop by avoiding the vowel sound in <and>. Start with unison drills then individual ones. Keep the same falling intonation.

bread - n - butter

wives - n - husbands

bread and butter

wives and husbands

milk and water

East and West

boys and girls

Pride and Prejudice

men and women

knives and spoons

black and white

night and day

moon and star

tired and worn

dance and fun

milk and sugar

silver and gold

six and seven

Diacritics used

The following diacritics were used throughout the thesis:

p ^h	released
-	unreleased
/ /	a phoneme, phonemic
[]	allophone, phonetic
[ɣ]	Dark [ɣ]
D	velarized Arabic
/:/	length
ˈ	primary stress
ˌ	secondary stress
ˑ	syllabic
< >	graphic

Other symbols were described at the place they were used.

APPENDIX

The List of Arabic Consonant Clusters

The data are prepared by the writer to contrast between American English consonant clusters and Syrian Arabic consonant clusters. Some sequences of two consonants as /zn, zr, rn/ as in the words /ʔizn/ "permission", /ʔuzr/ "excuse", /rni:n/ "ringing", are identified by the writer as clusters, without considering the possibility of inserting a vowel. They may be considered by some phoneticians as syllabic consonants because they occur in unstressed syllables and they have the same point of articulation.

a) Initial Consonant Clusters

Two Segments

<u>Arabic Clusters</u>	<u>Phonemic Transcription</u>	<u>Meaning</u>
/tk/	/tkammal/	got complete
/tʔ/	/tʔu:m/	to stand up
/tb/	/tbanna/	adopt
/tf/	/tfarraʒ/	to look at
/ts/	/tsabbah/	he swam
/tʃ/	/tʃaʒʒaʒ/	to be encouraged
/tx/	/txu:t/	beds
/th/	/thammam/	he bathed
/th/	/tha:wan/	he was disinclined to work
/tg/	/tgassal/	he washed
/tʒ/	/tʒawwad/	he got used to
/tm/	/tma:m/	mouthes

<u>Arabic Clusters</u>	<u>Phonemic Transcription</u>	<u>Meaning</u>
/tn/	/tna:ni:r/	skirts
/tl/	/tla:l/	hills
/tr/	/trammal/	he became a widow
/tw/	/twažžaǧ/	he felt pain
/ty/	/tyattam/	he became an orphan
/Tʔ/	/TʔaTTaǧ/	it is broken into pieces
/Tb/	/Tbu:l/	drums
/Tf/	/TfaDDal/	welcome
/TS/	/TSawwar/	imagine
/Tš/	/Tša:Tar/	he became clever
/Tx/	/TxayyaT/	it is sown
/Th/	/Thi:n/	flour
/Th/	/Tha:ra/	purity
/Tz/	/TzallaT/	he got naked
/Tǧ/	/TǧaTTaS/	he dove
/Tǧ/	/TǧaTTaL/	it is damaged
/Tm/	/TmaTTa/	he yawned
/Tn/	/Tnaǧš/	twelve
/TL/	/TLu:ǧ/	ascent
/TR/	/TRa:b/	dust
/Tw/	/Twa:L/	long
/Ty/	/Tyu:R/	birds
/kt/	/kta:b/	book
/kʔ/	/kʔa:R/	many

<u>Arabic Clusters</u>	<u>Phonemic Transcription</u>	<u>Meaning</u>
/kʔ/	/kʔa:bi/	sadness
/kb/	/kbi:r/	big
/kf/	/kfu:f/	gloves
/ks/	/ksu:r/	fractions
/kh/	/khu:l/	alcohol
/kh/	/khu:l/	old men
/kz/	/kzabt/	I lied
/kʒ/	/kʒu:b/	heels
/km/	/kma:m/	sleeves
/kn/	/kna:dir/	shoes
/kl/	/kla:b/	dogs
/kr/	/kru:m/	vineyards
/kw/	/kwa:ʒ/	corners
/ky/	/kya:s/	bags
/ʔt/	/ʔta:l/	fight
/ʔT/	/ʔTa:T/	cats
/ʔk/	/ʔkaltu/	I ate it
/ʔb/	/ʔbu:r/	graves
/ʔd/	/ʔdirna/	we could
/ʔD/	/ʔDa:mi/	roasted chick peas
/ʔf/	/ʔfaltu/	I locked
/ʔs/	/ʔsa:wir/	bracelets
/ʔS/	/ʔSu:r/	palaces
/ʔš/	/ʔšu:r/	peel

<u>Arabic Clusters</u>	<u>Phonemic Transcription</u>	<u>Meaning</u>
/ʔx/	/ʔxadna/	we took
/ʔh/	/ʔha:Ta/	precaution
/ʔh/	/ʔha:ni/	insult
/ʔz/	/ʔza:z/	glass
/ʔʒ/	/ʔʒi:r/	servant
/ʔʒ/	/ʔʒadna/	we sat
/ʔm/	/ʔma:ʃ/	cloth
/ʔn/	/ʔna:ni/	bottles
/ʔl/	/ʔlu:b/	hearts
/ʔL/	/ʔLaTna/	we skipped
/ʔr/	/ʔru:d/	monkeys
/ʔR/	/ʔRa:Di/	lands
/ʔw/	/ʔwa:s/	shooting
/ʔy/	/ʔyu:d/	chains
/bt/	/btummu/	in his mouth
/bT/	/bTu:n/	bellies
/bk/	/bki:t/	I wept
/bʔ/	/bʔabbi/	with a collar
/bd/	/bdu:r/	I turn
/bD/	/bDummu/	I hug him
/bf/	/Bfawwru/	I boil it
/bs/	/bsa:fir/	I travel
/bS/	/bSa:T/	carpet

<u>Arabic Clusters</u>	<u>Phonemic Transcription</u>	<u>Meaning</u>
/bš/	/bša:Ra/	tidings
/bx/	/bxu:nu/	I'll betray him
/bh/	/bhimmtu/	with his own work
/bz/	/bzittu/	I will throw it
/bZ/	/bZulmi/	in the dark
/bž/	/bži:bu/	I'll bring it
/bg/	/bga:l/	mules
/bǧ/	/bǧi:r/	I lend
/bm/	/bmu:t/	I will die
/bn/	/bna:di/	I call
/bl/	/blu:mu/	I'll blame him
/bL/	/bLa:T/	tile
/br/	bru:h/	I go
/bR/	/bRamtu/	I turned it
/bw/	/bwa:b/	doors
/by/	/byu:t/	houses
/dk/	/dka:ki:n/	shops
/dʔ/	/dʔu:n/	beards
/db/	/dbi:k/	banging
/df/	/dfa:tir/	notebooks
/ds/	/dsu:t/	caldrons
/dx/	/dxu:l/	entry
/dh/	/dhalna/	we rolled

<u>Arabic Clusters</u>	<u>Phonemic Transcription</u>	<u>Meaning</u>
/dh/	/dhu:r/	ages
/dz/	/dzawwaž/	he got married
/dZ/	/dZaffar/	he got praised
/dž/	/dža:waru/	they became neighbours
/dg/	/dgabbar/	to become dusty
/dǧ/	/dǧa:hi:l/	round
/dm/	/dma:mil/	boils
/dn/	/dna:b/	tails
/dl/	/dla:yil/	indications
/dr/	/dru:b/	roads
/dw/	/dwa:b/	animals
/dy/	/dya:b/	wolves
/Dʔ/	/Dʔi:l/	slight
/Db/	/Dbɑ:ǧ/	hyena
/Df/	/Dfa:Diǧ/	frogs
/DS/	/DSaDDaǧ/	it is broken
/Dx/	/Dxa:mi/	bigness
/Dh/	/Dha:ya/	victims
/Dh/	/Dhu:R/	peaks
/DZ/	/DZaLLaT/	he undressed
/Dž/	/DžabbaR/	he was put in a cast
/Dǧ/	/Dǧa:yin/	malice
/Dǧ/	/Dǧi:f/	weak

<u>Arabic Clusters</u>	<u>Phonemic Transcription</u>	<u>Meaning</u>
/Dm/	/Dma:D/	bandage
/DL/	/DLu:9/	ribs
/DR/	/DRa:9/	one meter
/DW/	/DWayna/	we lit
/Dy/	/Dya:9/	to be at a loss
/ft/	/fti:li/	wick
/fT/	/fTa:yir/	pies
/fk/	/fkašna/	we sprained
/fʔ/	/fʔu:s/	axes
/fd/	/fda:di:n/	faddans
/fD/	/fDi:ha/	scandal
/fs/	/fsattu/	you spoiled him
/fS/	/fSu:l/	seasons
/fš/	/fšart/	you lie
/fx/	/fxu:d/	legs
/fh/	/fhu:l/	strong fellows
/fh/	/fhimt/	I understood
/fz/	/fziqt/	I got afraid
/fž/	/fžu:r/	vice
/f9/	/f9altu/	I did it
/fn/	/fnu:n/	arts
/fl/	/flu:s/	money
/fL/	/fLaSna/	we escaped

<u>Arabic Clusters</u>	<u>Phonemic Transcription</u>	<u>Meaning</u>
/fr/	/fru:d/	guns
/fR/	/fRu:Da/	homework
/fw/	/fwa:kà/	fruits
/fy/	/fya:l/	elephants
/st/	/sta:ra/	curtain
/sk/	/sku:t/	silence
/sʔ/	/sʔu:f/	ceilings
/sb/	/sbih̄t/	I swam
/sf/	/sfi:n/	a kind of meat
/sx/	/sxu:ni/	temperature, illness
/sh̄/	/sha:b/	pull
/sh/	/shu:l/	plains
/sž/	/sžu:d/	kneeling
/sɟ/	/sɟalt/	I coughed
/sm/	/smi:n/	fat
/sn/	/sni:n/	years
/sl/	/sla:h̄/	arms
/sr/	/sru:r/	joy
/sw/	/swa:ra/	bracelet
/sy/	/syu:f/	swords
/ST/	/STu:h̄/	roof
/Sk/	/Sku:k/	deeds

<u>Arabic Clusters</u>	<u>Phonemic Transcription</u>	<u>Meaning</u>
/Sʔ/	/SʔaLLa/	those good old days
/Sb/	/Sba:ya/	young girls
/SD/	/SDu:r/	breasts
/Sf/	/Sfu:f/	rows
/Sx/	/Sxu:R/	rocks
/Sh/	/Shu:n/	plates
/Sh/	/Shu:ra/	brothers-in-law
/Sʒ/	/Sʒu:bi/	difficulty
/Sm/	/SmaLLa/	In the name of God
/Sn/	/Snubar/	pine nuts
/SL/	/SLa:Ta/	salad
/SR/	/SRaSi:R/	cock-roaches
/Sw/	/Swa:ni/	trays
/Sy/	/Sya:m/	fasting
/ʃt/	/ʃtari:t/	I bought
/ʃt/	/ʃTa:ra/	cleverness
/ʃk/	/ʃku:k/	doubts
/ʃʔ/	/ʃʔu:f/	pots
/ʃb/	/ʃba:T/	February
/ʃd/	/ʃdi:d/	firm
/ʃf/	/ʃfa:yif/	lips
/ʃx/	/ʃxi:r/	snoring
/ʃh/	/ʃhu:m/	fats

<u>Arabic Clusters</u>	<u>Phonemic Transcription</u>	<u>Meaning</u>
/ħh/	/ħhu:d/	witnesses
/ħz/	/ħzu:z/	exceptions
/ħZ/	/ħZiyi/	splinter
/ħg/	/ħga:l/	work
/ħġ/	/ħġi:R/	barley
/ħm/	/ħmu:ġ/	candles
/ħn/	/ħna:ti/	suitcases
/ħl/	/ħli:f/	bag
/ħr/	/ħru:r/	evils
/ħR/	/ħRi:T/	wire
/ħw/	/ħwa:m/	Damascenes
/ħy/	/ħyu:x/	elders
/xt/	/xtirtu/	I chose it
/xT/	/xTu:T/	lines
/xb/	/xba:R/	news
/xD/	/xDaRR/	it became green
/xf/	/xfa:f/	light
/xs/	/xsi:s/	stingy
/xS/	/xSa:Ra/	lose
/xš/	/xša:f/	a drink
/xz/	/xza:ni/	cupboard
/xž/	/xžaEl/	be ashamed
/xm/	/xma:R/	veil

<u>Arabic Clusters</u>	<u>Phonemic Transcription</u>	<u>Meaning</u>
/xn/	/xna: fis/	beetles
/xl/	/xla: xi:l/	bracelets
/sL/	/xLaTna/	we mixed
/xr/	/xru: ?/	rags
/xR/	/xRa: yiT/	maps
/xw/	/xwa: tim/	rings
/xy/	/xya: R/	cucumbers
/ht/	/hta: r/	he was puzzled
/hT/	/hTa: m/	ruins
/hk/	/hka: yi/	story
/hʔ/	/hʔu: ?/	rights
/hb/	/hba: bna/	our beloved ones
/hD/	/hDu: n/	laps
/hf/	/hfa: Z/	memorize
/hs/	/hsa: si:n/	birds
/hS/	/hSa: n/	horse
/hš/	/hši: š/	grass
/hZ/	/hza: zi: r/	puzzles
/hZ/	/hZu: Z/	lucks
/hm/	/hma: R/	donkey
/hn/	/hna: ži: r/	voice boxes
/hl/	/hla: ?/	earnings
/hr/	/hri: ?/	hot

<u>Arabic Clusters</u>	<u>Phonemic Transcription</u>	<u>Meaning</u>
/hR/	/hRa:mi/	thief
/hw/	/hwa:li/	draft
/hy/	/hya:ki/	weaving
/ht/	/hta:fa:t/	cheers
/hk/	/hkalt hammu/	I was worried about him
/hb/	/hbu:b/	waft
/hd/	/hdi:R/	roaring
/hD/	/hDamTu/	I digested it
/hf/	/hfatna/	we rushed
/hz/	/hzantu/	I defeated him
/hž/	/hžartu/	I left him
/hm/	/hmu:m/	worries
/hn/	/hnu:d/	Indians
/hl/	/hla:l/	moon
/hr/	/hrabt/	I escaped
/hw/	/hwayyin/	easy
/hy/	/hya:m/	love
/zk/	/zka:m/	cold
/zʔ/	/zʔa:ʔ/	alley
/zb/	/zbu:n/	client
/zd/	/zdi:ʔ/	friend
/zf/	/zfa:f/	wedding

<u>Arabic Clusters</u>	<u>Phonemic Transcription</u>	<u>Meaning</u>
/zX/	/zxi:ri/	gem
/zh/	/zha:lni/	from Zahle
/zh/	/zhu:r/	flowers
/zž/	/zžartu/	I scolded him
/zg/	/zga:gi:l/	birds
/zʒ/	/zʒa:l/	get angry
/zm/	/zma:n/	a long time
/zn/	/znu:d/	arms
/zl/	/zla:m/	men
/zL/	/zLu:T/	naked
/zr/	/zra:bi/	imprisonment
/zR/	/zRaʒna/	we planted
/zw/	/zwa:ži/	marriage
/zy/	/zyu:t/	oils
/zf/	/zfiRna/	we won
/Zh/	/Zhu:r/	appearance
/Zʒ/	/Zʒi:T/	screaming
/Zm/	/Zmu:T/	escape
/Zn/	/Znu:n/	thoughts
/ZL/	/Zla:L/	shades
/ZR/	/ZRu:f/	envelopes
/žt/	/žtarr/	"he chewed the cud"

<u>Arabic Clusters</u>	<u>Phonemic Transcription</u>	<u>Meaning</u>
/ʒk/	/ʒka:ra/	spite
/ʒb/	/ʒba:l/	mountains
/ʒd/	/ʒdi:d/	new
/ʒD/	/ʒDa:r/	wall
/ʒf/	/ʒfu:n/	eyelids
/ʒs/	/ʒsu:R/	bridges
/ʒh/	/ʒha:š/	donkeys
/ʒh/	/ʒhannam/	hell
/ʒz/	/ʒzu:r/	roots
/ʒg/	/ʒgi:R/	screaming
/ʒm/	/ʒma:ʒ a/	group
/ʒn/	/ʒnu:n/	fouliness
/ʒl/	/ʒla:yil/	bed covers
/ʒr/	/ʒraba:t/	stockings
/ʒR/	/ʒRa:š/	bells
/ʒw/	/ʒwa:ri:b/	stockings
/ʒy/	/ʒyu:b/	pockets
/gt/	/gtanam/	he seized
/gT/	/gTa:S/	diving
/gb/	/gba:R/	dust
/gf/	/gfi:na/	we fell asleep
/gs/	/gsalna/	we washed
/gS/	/gSu:n/	branches

<u>Arabic Clusters</u>	<u>Phonemic Transcription</u>	<u>Meaning</u>
/gš/	/gši:na/	we roared
/gz/	/gza:li/	deer
/gm/	/gmi:na/	we fainted
/gn/	/gna:ni/	songs
/gl/	/gla?na/	we closed
/gL/	/gLa:T/	make a mistake
/gr/	/gru:b/	sunset
/gR/	/gRa:D/	things
/gw/	/gwa:l/	monsters
/gy/	/gyu:m/	clouds
/ʔt/	/ʔta:li/	cartage
/ʔT/	/ʔTu:R/	perfume
/ʔk/	/ʔka:kiəz/	walking sticks
/ʔʔ/	/ʔʔu:l/	minds
/ʔb/	/ʔbħ:d/	slaves
/ʔd/	/ʔdu:l/	bags
/ʔD/	/ʔDa:m/	bones
/ʔf/	/ʔfu:ni/	mold
/ʔs/	/ʔsi:s/	slow fire
/ʔS/	/ʔSa:fi:R/	birds
/ʔš/	/ʔša:š/	nests
/ʔz/	/ʔzu:mi/	a party
/ʔZ/	/ʔZa:m/	great (ones)

<u>Arabic Clusters</u>	<u>Phonemic Transcription</u>	<u>Meaning</u>
/ʒ/	/ʒu:l/	cows
/ʒm/	/ʒma:ra:t/	buildings
/ʒn/	/ʒna:d/	obstinacy
/ʒl/	/ʒla:ma:t/	grades
/ʒr/	/ʒru:ʔ/	veins
/ʒR/	/ʒRa:D/	wide
/ʒw/	/ʒwa:mi:d/	pillars
/ʒy/	/ʒyu:n/	eyes
/mt/	/mti:n/	firm
/mT/	/mTa:wal/	long
/mk/	/mkabbir/	magnifier
/mʔ/	/mʔaddab/	polite
/mb/	/mba:rak/	blessed
/md/	/mdawwar/	rounded
/mD/	/mDawwa/	lighted
/mf/	/mfa:ti:h/	keys
/ms/	/msa:nid/	pillows
/mS/	/mSaLLa/	married
/mš/	/mša:wra/	consultation
/mx/	/mxaddi/	pillow
/mh/	/mhall/	a shop
/mh/	/mhimm/	important

<u>Arabic Clusters</u>	<u>Phonemic Transcription</u>	<u>Meaning</u>
/mz/	/mzawwaž/	he is married
/mZ/	/mZaLLaT/	naked
/mž/	/mža:ni:n/	fools
/mg/	/mga:Ra/	cave
/mǧ/	/mǧa:li?/	spoons
/mn/	/mna:di:l/	handkerchiefs
/ml/	/mlawwan/	coloured
/mL/	/mLaTTax/	spotted
/mr/	/mrabbih/	profitable
/mR/	/mRi:D/	sick
/mw/	/mwa:wi:l/	songs
/my/	/mya:l/	miles
/nt/	/ntarrek/	to leave
/nT/	/nTaZaR/	he waited
/nk/	/nku:š/	dig
/nʔ/	/nʔu:m/	we get up
/nb/	/nba:h/	bark
/nd/	/ndawwir/	we look for
/nD/	/nDummu/	to join him
/nf/	/nfarrih/	we give joy
/ns/	/nsa:wim/	we bargain
/nS/	/nSawwmu/	we make him fast

<u>Arabic Clusters</u>	<u>Phonemic Transcription</u>	<u>Meaning</u>
/nš/	/nša:wru/	we consult him
/nx/	/nxammin/	we think
/nh/	/nhammlu/	we load him
/nh/	/nhu:ra/	rivers
/nz/	/nzu:R/	we visit
/nž/	/nža:S/	pears
/ng/	/nganni/	we sing
/nǧ/	/nǧu:d/	we return
/nm/	/nmu:ra/	tigers
/nl/	/nlu:mu/	we blame him
/nL/	/nLaTTix/	we make spots
/nr/	/nra:fi?/	we accompany
/nR/	/nRabbi/	we bring up
/nw/	/nwaddiǧ/	we say good-bye
/ny/	/nya:m/	asleep
/lt/	/lta?ayna/	we met
/lk/	/lkamtu/	I knocked him
/l?/	/l?i:tu/	I found him
/lb/	/lbest/	I put on my dress
/ld/	/ldaǧtu/	I burned him
/lf/	/lfu:l/	the beans
/ls/	/lsain/	tongue

<u>Arabic Clusters</u>	<u>Phonemic Transcription</u>	<u>Meaning</u>
/lx/	/lxami:s/	Thursday
/lh/	/lhamtu/	I soldered it
/lh/	/lhamm/	the worry
/lz/	/lza?tu/	I stuck it
/lž/	/lžɑ:m/	rain
/lg/	/lga:l/	lock
/lʒ/	/lʒɑ:b/	play
/lm/	/lmi:na/	the harbour
/lw/	/lwa:h/	boards
/ly/	/lya:li:na/	our nights
/Lb/	/LbaTTi:x/	the melon
/LT/	/LTamTu/	I slapped him
/LD/	/LDamtu/	I sewed it
/Lf/	/LfuRSa/	the vacation
/Lx/	/LxaTT/	the line
/Lh/	/LhaTab/	the wood
/Lm/	/LmaTT/	the expansion
/Lw/	/LwiTwa:T/	the bat
/rt/	/rte:tu/	to sew it up
/rk/	/rku:ʔ/	kneeling
/rb/	/rbiat/	I won
/rd/	/rda:n/	a dress

<u>Arabic Clusters</u>	<u>Phonemic Transcription</u>	<u>Meaning</u>
/rf/	/rfu:f/	shelves
/rs/	/rsamtu/	I drew it
/rš/	/rši:h/	filtering
/rx/	/rxa:m/	marble
/rh/	/rhamtu/	had mercy on him
/rh/	/rhi:ni/	guarantee
/rz/	/rza:li/	villainy
/rž/	/ržu:ʒ/	a return
/rg/	/rgi:f/	a loaf of bread
/rʒ/	/rʒu:d/	thunder
/rm/	/rma:h/	spears
/rn/	/rni:n/	ringing
/rw/	/rwa:yi/	a play
/ry/	/rya:h/	wind
/RT/	/RTu:bi/	wet
/RD/	/RDa:ʒa/	suckling
/RS/	/RSi:f/	side walk
/wt/	/wta:r/	strings
/wT/	/wTa:wi:T/	bats
/wk/	/wku:r/	holes
/wʔ/	/wʔi:yyi/	200 grams
/wb/	/wba:raktu	and I blessed him

<u>Arabic Clusters</u>	<u>Phonemic Transcription</u>	<u>Meaning</u>
/wd/	/wda:we:tu/	and I treated him with
/wD/	/wDawwa ⁹ tu/	and I lost it
/wf/	/wfarže:tu/	and I showed him
/ws/	/wsi:9/	wide
/wS/	/wSu:L/	arriving
/wš/	/wša:wartu/	and I consulted him
/wx/	/wxabbe:tu/	and I hid him
/wh/	/whu:l/	mud
/wh/	/whade:tu/	and I gave him a present
/wz/	/wza:ra/	ministry
/wZ/	/wZanne:T/	and I thought it
/wž/	/wžamma ⁹ t/	and I collect
/wg/	/wgibt/	and I absented myself
/w9/	/w9u:d/	promises
/wm/	/wma ⁹ u/	and with him
/wn/	/wna:da/	and he called
/wl/	/wla:d/	boys
/wL/	/wLaTTax/	and he made spots
/wr/	/wru:d/	roses
/wR/	/wRa:h/	and he went
/wy/	/wyu:m/	and a day
/yt/	/ytanni/	to second
/yT/	/yTawwiL/	to stay long

<u>Arabic Clusters</u>	<u>Phonemic Transcription</u>	<u>Meaning</u>
/yk/	/karrim/	to honour
/yʔ/	/yʔist/	I became hopeless
/yb/	/yba:rik/	to bless
/yd/	/yda:ri/	to care for
/yD/	/yDawwiʔ/	to lose
/yf/	/yfawwit/	to make it go in
/ys/	/ysa:yir/	to talk with
/yS/	/ySu:m/	to fast
/yš/	/yša:wir/	to consult
/yx/	/yxalli/	to allow
/yh/	/yha:wil/	to try
/yh/	/yha:din/	to make peace
/yz/	/yzaʔil/	to make angry
/yZ/	/yZunn/	to think
/yž/	/yža:wru/	to stay near him
/yg/	/ygabbru/	to dust it
/yǧ/	/yǧawwid/	to make use to
/ym/	/ymawwtu/	to kill him
/yn/	/yna:di/	to call
/yl/	/ylu:m/	to blame
/yL/	/yLaTTix/	to make spots
/yr/	/yri:d/	to want
/yR/	/yRaDDi /	to breast feed
/yw/	/ywabbix/	to scorn

b) Final Consonant Clusters

Two Segments

<u>Arabic Clusters</u>	<u>Phonemic Transcription</u>	<u>Meaning</u>
/tk/	/fatk/	killing
/tʔ/	/fitʔ/	hernia
/tb/	/kutb/	books
/tb/	/natf/	depilating
/tš/	/natš/	snatching
/tħ/	/fathħ/	opening
/tʒ/	/natʒ/	jerking
/tm/	/ʒitm/	darkness
/tn/	/matn/	the name of a district
/tl/	/mitl/	like
/tr/	/setr/	cover
/tw/	/twa:na/	he delayed
/Tʔ/	/nuTʔ/	talking
/Tb/	/ʒuTb/	spoilage
/Tf/	/xaTf/	abduction
/TS/	/lgaTS/	diving
/Tš/	/LaTš/	stealing
/Tx/	/LaTx/	beating
/Th/	/SaTh/	roof
/Tʒ/	/ʔaTʒ/	break

<u>Arabic Clusters</u>	<u>Phonemic Transcription</u>	<u>Meaning</u>
/Tm/	/buTm/	terebinth
/TL/	/RaTL/	3 kilos
/TR/	/ʔuTR/	perfume
/kt/	/nakt/	looking for
/kb/	/rukʔb/	riding
/kD/	/RakD/	running
/ks/	/ʔaks/	opposite
/kš/	/nakš/	digging
/kh/	/fakh/	walking
/kz/	/Lakz/	nudge
/kg/	/nakʔ/	nudge
/km/	/hukm/	rule
/kn/	/rukʔn/	place
/kl/	/ʔakl/	food
/kr/	/fikr/	thought
/kR/	/sukR/	drunkenness
/ʔt/	/waʔt/	time
/ʔT/	/LaʔT/	catching
/ʔb/	/teʔb/	hole
/ʔd/	/ʔaʔd/	tying
/ʔD/	/naʔD/	undoing
/ʔf/	/saʔf/	ceiling

<u>Arabic Clusters</u>	<u>Phonemic Transcription</u>	<u>Meaning</u>
/ʔs/	/baʔs/	strength
/ʔS/	/TaʔS/	weather
/ʔš/	/naʔš/	engraving
/ʔh/	/Laʔh/	lying
/ʔg/	/waʔg/	second hand
/ʔm/	/raʔm/	number
/ʔn/	/daʔn/	chin
/ʔl/	/gaʔl/	mind
/ʔr/	/fuʔr/	poverty
/ʔR/	/SaʔR/	eagle
/bt/	/sabt/	Saturday
/bT/	/RabT/	tying
/bk/	/nabk/	name of a town
/bʔ/	/libʔ/	surname
/bd/	/ʔabd/	slave
/bD/	/ʔabD/	receiving (payment)
/bs/	/habs/	prison
/bš/	/nabš/	looking for
/bx/	/Tabx/	cooking
/bh/	/Subh/	morning
/bh/	/šibh/	likeness
/bz/	/xubz/	bread

<u>Arabic Clusters</u>	<u>Phonemic Transcription</u>	<u>Meaning</u>
/bž/	/habž/	carelessness
/bg/	/tibg/	tobacco
/bʒ/	/rubʒ/	quarter
/bn/	/ʔibn/	son
/bl/	/habl/	rope
/bL/	/TabL/	drum
/br/	/žabr/	algebra
/bR/	/SabR/	patience
/d /	/Sidʔ/	honesty
/db/	/nadb/	moaning
/df/	/ridf/	bum
/dš/	/kidš/	lamb
/dḥ/	/madḥ/	praise
/dž/	/fidž/	wound in his head
/dg/	/ladg/	bitten
/d /	/lidʒ/	burn
/dm/	/ʔudm/	old
/dn/	/ʔidn/	ear
/dl/	/ʒadl/	justice
/dr/	/badr/	moon

<u>Arabic Clusters</u>	<u>Phonemic Transcription</u>	<u>Meaning</u>
/Dž/	/nuDž/	maturity
/Dg/	/maDg/	chewing
/Dǧ/	/waDǧ/	condition, state
/Dm/	/haDm/	digestion
/Dn/	/ħuDn/	lap
/DL/	/faDL/	favour
/DR/	/xiDR/	green
/ft/	/šuft/	I saw
/fT/	/nafT/	petrol
/fk/	/safk/	killing
/fʔ/	/refʔ/	pity, kindness
/fD/	/rafD/	refusal
/fs/	/nafs/	the same
/fS/	/ǧafS/	a kind of trees
/fš/	/ǧafš/	furniture
/fx/	/nafx/	blowing
/fh/	/Tafh/	eruption
/fz/	/ʔafz/	jumping
/fZ/	/LafZ/	pronunciation
/fǧ/	/rafǧ/	lifting
/fn/	/žifn/	eyelid

<u>Arabic Clusters</u>	<u>Phonemic Transcription</u>	<u>Meaning</u>
/fl/	/hafl/	party
/fL/	/TifL/	child
/fr/	/sifr/	zero
/fR/	/DufR/	na il
/st/	/dist/	caldron
/sk/	/misk/	perfume
/sʔ/	/fisʔ/	riot
/sb/	/kasb/	gain
/sf/	/nasf/	blowing up
/sx/	/nasx/	copying
/sh/	/mash/	wiping
/sž/	/nasž/	weaving
/sg/	/risg/	wrist
/sɣ/	/tisɣ/	ninth
/sm/	/ʔism/	name
/sn/	/husn/	beauty
/sl/	/gasl/	washing
/sr/	/nisr/	eagle
/ST/	/baST/	joy
/SD/	/ʔaSD/	aim
/Sf/	/ʔaSf/	burst of thunder

<u>Arabic Clusters</u>	<u>Phonemic Transcription</u>	<u>Meaning</u>
/Sx/	/faSx/	breaking
/Sʔ/	/raSʔ/	decorated with jewels
/Sm/	/ʔiSm/	part
/Sn/	/guSn/	branch
/SL/	/waSL/	receipt
/SR/	/naSR/	victory
/št/	/ʔišt/	I lived
/šT/	/TašT/	basin
/šk/	/hašk/	pushing
/šʔ/	/ʔišʔ/	love
/šb/	/ʔušb/	grass
/šd/	/hašd/	concentration
/šf/	/kašf/	examination
/šx/	/fašx/	striding
/šh/	/rašh/	cold
/šm/	/wašm/	tattoo
/šl/	/našl/	pick pocketing
/šr/	/ʔušr/	one tenth
/šR/	/našR/	publishing
/xt/	/taxt/	bed
/xT/	/SaxT/	complaining

<u>Arabic Clusters</u>	<u>Phonemic Transcription</u>	<u>Meaning</u>
/xb/	/naxb/	cheers
/xd/	/ʔaxd/	taking
/xS/	/šaxS/	person
/xš/	/buxš/	hole
/xz/	/waxz/	piercing
/xm/	/Daxm/	colossal
/xn/	/suxn/	hot
/xl/	/duxl/	salary
/xr/	/naxr/	piercing
/xR/	/SaxR/	rock
/ht/	/taht/	below
/hT/	/ʔahT/	scraping
/hk/	/Dehk/	laughing
/hʔ/	/sahʔ/	crushing
/hb/	/sahb/	pulling
/hd/	/Lahd/	grave
/hf/	/zahf/	creeping
/hs/	/nahs/	bad luck
/hS/	/fahS/	examination
/hš/	/šahš/	donkey
/hm/	/fahm/	coal
/hn/	/Sahn/	plate

<u>Arabic Clusters</u>	<u>Phonemic Transcription</u>	<u>Meaning</u>
/hl/	/nahl/	bees
/hr/	/sehr/	charm
/hR/	/bahR/	sea
/ht/	/tuht/	I lost my way
/hT/	/LahT/	eating with greediness
/hʔ/	/šahʔ/	inhalation
/hb/	/nahb/	thieving
/hd/	/zuhd/	obstinence
/hf/	/kahf/	cave
/hs/	/dahs/	to ride down
/hš/	/nahš/	biting
/hž/	/nahž/	way
/hm/	/sahm/	arrow
/hn/	/duhn/	fat
/hl/	/sahl/	easy
/hr/	/zahr/	flowers
/hR/	/DahR/	back
/zʔ/	/žizʔ/	part
/zb/	/hizb/	party
/zf/	/hazf/	deletion
/zh/	/mazh/	joking
/zž/	/mazž/	mixing

<u>Arabic Clusters</u>	<u>Phonemic Transcription</u>	<u>Meaning</u>
/zʒ/	/ʒizʒ/	branch
/zm/	/ʒazm/	resoluteness
/zn/	/ʒizn/	permission
/zl/	/gazl/	weaving
/zr/	/ʒuzr/	excuse
/Zm/	/ʒaZm/	family name
/ZR/	/ʒaZR/	root
/ʒt/	/tʃarraʒt/	I watched
/ʒT/	/DuʒT/	I got bored
/ʒʔ/	/maʒʔ/	kissing
/ʒd/	/maʒd/	glory
/ʒf/	/raʒf/	shaking
/ʒh/	/wiʒh/	face
/ʒz/	/haʒz/	confiscation
/ʒR/	/faʒR/	daybreak
/gT/	/La:gT/	noise
/gD/	/bugD/	hatred
/gf/	/ʒugf/	love
/gS/	/magS/	stomach ache
/gz/	/Lugz/	enigma
/gl/	/ʒugl/	work
/gr/	/Zugr/	smallness

<u>Arabic Clusters</u>	<u>Phonemic Transcription</u>	<u>Meaning</u>
/ʔt/	/naʔt/	adjective
/ʔT/	/LaʔT/	eating greedily
/ʔk/	/kaʔk/	cake
/ʔb/	/Saʔb/	difficult
/ʔb/	/saʔd/	luck
/ʔD/	/baʔD/	some
/ʔf/	/Duʔf/	weakness
/ʔs/	/baʔs/	resurrection
/ʔS/	/ʒaʔS/	boastfulness
/ʔš/	/naʔš/	casket
/ʔž/	/biʔž/	piercing
/ʔm/	/Taʔm/	taste
/ʔn/	/laʔn/	imprecation
/ʔl/	/naʔl/	heel
/ʔr/	/šigʔr/	poetry
/ʔR/	/waʔR/	by-way
/mt/	/fhimt/	I understood
/mT/	/SamT/	silence
/mk/	/sumk/	thickness
/mʔ/	/ʔumʔ/	depth
/md/	/hamd/	praise
/mD/	/hamD/	acid

<u>Arabic Clusters</u>	<u>Phonemic Transcription</u>	<u>Meaning</u>
/ms/	/šams/	sun
/mS/	/ħams/	Homs, name of a town
/mš/	/xamš/	scratching
/mh/	/ʔamħ/	wheat
/mz/	/ramz/	symbol
/mž/	/damž/	mixing
/mg/	/simg/	glue
/mǧ/	/žamǧ/	addition
/mn/	/sumn/	fatness
/ml/	/ħiml/	burden
/mr/	/tamr/	date
/mR/	/xamR/	wine
/nt/	/bint/	girl
/nʔ/	/ǧinʔ/	branch
/nb/	/žanb/	side
/nd/	/hind/	name
/nf/	/ʔinf/	nose
/ns/	/žins/	kind, sex
/nS/	/ʔanS/	stealing
/nħ/	/žinh/	wing
/nz/	/kanz/	treasure
/nž/	/ǧunž/	flirtation
/nǧ/	/Sunǧ/	made

<u>Arabic Clusters</u>	<u>Phonemic Transcription</u>	<u>Meaning</u>
/lt/	/tult/	third
/lk/	/gilk/	chewing gum
/lʔ/	/xulʔ/	morality
/lb/	/ʔalb/	heart
/ld/	/ʒild/	skin
/lf/	/ʔalf/	thousand
/ls/	/fils/	coin
/lš/	/malš/	eating
/lx/	/salx/	scalping
/lh/	/milh/	salt
/lz/	/ʔalz/	jumping
/lž/	/talž/	snow
/lʒ/	/xalʒ/	taking off
/lm/	/silm/	peace
/LT/	/xaLT/	mixing
/LS/	/maLS/	act of being deprived
/Lh/	/SuLh/	reconciliation
/rt/	/durt/	I turned
/rk/	/tark/	abjuration
/rʔ/	/ʒirʔ/	vein
/rb/	/darb/	way
/rd/	/nard/	dice

<u>Arabic Clusters</u>	<u>Phonemic Transcription</u>	<u>Meaning</u>
/rf/	/ʔarf/	breaking
/rs/	/dars/	lesson
/rz/	/ʔarz/	cedar
/rš/	/farš/	bed
/rž/	/marž/	meadow
/rm/	/farm/	mince
/rn/	/ʔirn/	horn
/Rt/	/SiRt/	I became
/RT/	/šaRT/	bet
/Rb/	/Darb/	bitting
/RD/	/ʔaRD/	earth
/Rf/	/ʔaRf/	letter
/RS/	/ʔiRS/	care
/Rš/	/TaRš/	painting

BIBLIOGRAPHY

- Agard, Frederick B. and Dunkel, Harold B. An Investigation of Second-Language Teaching. New York: Ginn and Company, 1948.
- Allen, Harold B. Teaching English as a Second Language. New York: McGraw-Hill, Inc., 1965.
- Abdalla, Albert G. Exercises Book in English Phonetics. Cairo: Anglo Egyptian Bookshop, 1961.
- Bowman, W. G. English Pronunciation Drills for Arabic Speaking Students. London: Longmans, Green and Co., 1949.
- Clarey, M. Elizabeth and Dixon, Robert J. Pronunciation Exercises in English. New York: Regents Publishing Co., Inc., 1963.
- Lado, Robert and Fries, Charles C. English Pronunciation: Exercises in Sound Segments, Intonation and Rhythm. Ann Arbor, Michigan: University of Michigan Press, 1957.
- Fries, Charles C. Teaching and Learning English as a Foreign Language. Ann Arbor, Michigan: University of Michigan Press, 1945.
- Gairdner, W.H.T. The Phonetics of Arabic. London: Oxford University Press, 1925.
- Gleason, H.A. Jr. An Introduction to Descriptive Linguistics, revised edition. New York: Henry Holt and Co., 1961.
- Gregory, O. Dean. American and British English Monosyllable Word List: for Pronunciation Drills. Djakarta: Preliminary Edition, 1962.
- Gordon, Morton J. and Wong, Helene H. A Manual for Speech Improvement. Englewood Cliffs: Prentice-Hall, Inc., 1961.
- Hultzen, Lee S. "Consonant Clusters in English." American Speech, vol. XL, No. 1, (1965) 5 - 19.
- Hughes, John P. The Science of Language. New York: Random House, 1962.

- Hall, Robert A., Linguistics and Language. New York: Holt, Rinehart and Winston, Inc., 1961.
- Lado, Robert, Language Learning: A Scientific Approach. New York: McGraw-Hill, Inc., 1964.
- , Linguistics Across Cultures. Ann Arbor, Michigan: University of Michigan Press, 1957.
- Malik, Alice P. "A Comparative Study of American English and Iraqi Arabic Consonant Clusters," Language Learning, VII, No. 3-4 (1956-1957), 65 - 87.
- Nasr, Raja T. The Teaching of English to Arab Students. London: Longmans, Green and Co., Ltd., 1963.
- , Colloquial Arabic: An Oral Approach. Beirut: Librairie de Liban, 1966.
- Pike, Kenneth L. Phonemics: A Technique for Reducing Languages to Writing. Ann Arbor, Michigan: University of Michigan Press, 1947.
- Palmer, Harold E. The Principles of Language Study. London: George G. Harrap Co., Ltd., 1928.
- , The Oral Method of Teaching Languages. Cambridge: W. Heffer and Sons, Ltd., 1955.
- Strain, Jeris E. "Teaching of a Pronunciation Problem," Language Learning, XII (1962), 231 - 240.
- Stevick, Earl W. Helping People Learn English: A Manual for Teachers of English as a Second Language. New York: Abingdon Press, 1957.
- Thomas, Charles K. Phonetics of American English. New York: The Ronald Press Co., 1958.
- Trager, George L. and Smith, Henry Lee, Jr. An Outline of English Structures. Norman, Oklahoma: Battenburg Press, 1951.
- Wallace, Betty J. The Pronunciation of American English for Teachers of English as a Second Language. Ann Arbor, Michigan: University of Michigan Press, 1957.

Walter, Lehn and William, R. Slager. "A Contrastive Study of Egyptian Arabic and American English; The Segmental Phonemes," Language Learning. IX, No. 1 - 2, (1959) 25 - 33.

Yorkey, Richard. American English Pronunciation Practice. Beirut: mimeographed at A.U.B., 1965.