Contrastive Phonology

Dr. Reima Al-Jarf
Contents

Contrastive Phonology................................................................. 1

Contrastive Phonology................................................................. 3

English Phonemes........................................................................ 4

Arabic Phonemes.......................................................................... 5

Arabic Consonants....................................................................... 5

English Allophones....................................................................... 7

Arabic Allophones...................................................................... 8

Arabic Syllable Structure ............................................................. 10

English Stress............................................................................. 10

Arabic Stress............................................................................. 13

English Intonation...................................................................... 15

Arabic Intonation..................................................................... 16

English Juncture and Pause ......................................................... 16

Arabic Juncture and Pause.......................................................... 16

Interference Problems................................................................ 17

Exercises..................................................................................... 18
Contrastive Phonology

The process of comparing the English phonological system with the Arabic phonological system involves the following:

1. The linguistic analysis of both sound systems. Prepare a description of the English system and a similar description of the Arabic sound system. The description should include segmental phonemes, stress, intonation and juncture or transition. They should include relevant data on the phonetic features of the phonemes and their variants and on their distribution.

2. Comparison of both sound systems. In comparing the English sound system with the Arabic sound system, each phoneme should be taken up separately regardless of any general pattern of difference. The comparison of each phoneme should include at least three checks:

   - Do English and Arabic have phonetically different phonemes? The contrast involves the place of articulation (bilabial, labio-dental, dental, and alveolar, palato-alveolar, palatal, velar, uvular, pharyngeal, glottal) and the manner of articulation (nasal, fricative, affricate, stop, approximant, lateral, trill, tap, flap, retroflex).

   - Are the variants of the phonemes similar in both languages?

   - Are the phonemes similarly distributed? Distribution patterns (sequences) may correlate with syllables, morphemes, words, position of stress. We compare the sequences and the positions in which they occur. One tries to find out whether the language has a sequence, and whether the sequence occurs in a position in which it does not occur in the other language.
3. Description of troublesome contrasts.

**English Phonemes**

I. Consonants

<table>
<thead>
<tr>
<th>Phoneme</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>/p/ , /b/</td>
<td>(bilabial stop)</td>
</tr>
<tr>
<td>/m/</td>
<td>(bilabial nasal)</td>
</tr>
<tr>
<td>/w/</td>
<td>(bilabial approximant)</td>
</tr>
<tr>
<td>/s/ , /z/</td>
<td>(velar fricative)</td>
</tr>
<tr>
<td>/t/ , /d/</td>
<td>(dental fricative)</td>
</tr>
<tr>
<td>/n/</td>
<td>(alveolar nasal)</td>
</tr>
<tr>
<td>/l/</td>
<td>(alveolar lateral)</td>
</tr>
<tr>
<td>/j/</td>
<td>(palato-alveolar fricative)</td>
</tr>
<tr>
<td>/h/</td>
<td>(velar approximant)</td>
</tr>
</tbody>
</table>

II. English Vowels

<table>
<thead>
<tr>
<th>Phoneme</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>/i/</td>
<td>(high front)</td>
</tr>
<tr>
<td>/u/</td>
<td>(high back)</td>
</tr>
<tr>
<td>/æ/</td>
<td>(mid front)</td>
</tr>
<tr>
<td>/e/</td>
<td>(mid central)</td>
</tr>
<tr>
<td>/ə/</td>
<td>(mid back)</td>
</tr>
<tr>
<td>/a/</td>
<td>(low front)</td>
</tr>
<tr>
<td>/o/</td>
<td>(low back)</td>
</tr>
</tbody>
</table>

III. Diphthongs

<table>
<thead>
<tr>
<th>Phoneme</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>/ey/</td>
<td>(high front)</td>
</tr>
<tr>
<td>/iy/</td>
<td>(mid front)</td>
</tr>
<tr>
<td>/ow/</td>
<td>(mid back)</td>
</tr>
<tr>
<td>/uw/</td>
<td>(low front)</td>
</tr>
<tr>
<td>/ay/</td>
<td>(low back)</td>
</tr>
<tr>
<td>/aw/</td>
<td>(low front)</td>
</tr>
<tr>
<td>/oy/</td>
<td>(low back)</td>
</tr>
</tbody>
</table>
Arabic Phonemes

Arabic Consonants
/b/
/t/   /d/
/t/   /d/
/m/
/w/
/r/
/ /, / /
/ /, / /

Table 1: English and Arabic Phonemes in Contrast

<table>
<thead>
<tr>
<th>English</th>
<th>Arabic</th>
</tr>
</thead>
<tbody>
<tr>
<td>/b/</td>
<td>/p/</td>
</tr>
<tr>
<td>/t/</td>
<td>/t/</td>
</tr>
<tr>
<td>/d/</td>
<td>/d/</td>
</tr>
<tr>
<td>/m/</td>
<td>/m/</td>
</tr>
<tr>
<td>/n/</td>
<td>/n/</td>
</tr>
<tr>
<td>/k/</td>
<td>/k/</td>
</tr>
<tr>
<td>/g/</td>
<td>--</td>
</tr>
<tr>
<td>/f/</td>
<td>/f/</td>
</tr>
<tr>
<td>/v/</td>
<td>--</td>
</tr>
<tr>
<td>/w/</td>
<td>/w/</td>
</tr>
<tr>
<td>/ /</td>
<td>/ /</td>
</tr>
<tr>
<td>/ /</td>
<td>/ /</td>
</tr>
<tr>
<td>/s/</td>
<td>/s/</td>
</tr>
<tr>
<td>/z/</td>
<td>/z/</td>
</tr>
<tr>
<td>/r/retroflex</td>
<td>/r/</td>
</tr>
<tr>
<td>/l/velarized</td>
<td>/l/</td>
</tr>
<tr>
<td>/j/</td>
<td>/j/</td>
</tr>
</tbody>
</table>
English Allophones

1. aspirated [t p k] as allophones of /t p k/:
   Voiceless stops /t p k/ are aspirated when they are syllable initial, in words such as (pot, cat, car) but /p t k/ are unaspirated after after an /s/ in words like (spew, stew, skip).

2. Shortened vowels as allophones of regular vowels:
   The vowel is shorter before the voiceless consonants /p t k/ than is before the voiced consonants /b d g/.
   
   E.g.: cap cab
cat cad
back bag
cot cod
cup cub

3. glottal stop [?] as an allophone of /t/:
   glottal stops frequently occurs as an allophone of /t/ as in:
   beaten
   kitten
   fatten
   sentence

4. syllabic [l] as an allophone of /l/:
   It occurs when an alveolar stop /t/ or /d/ occurs before a homorganic lateral /l/ as in (little, sadle, cattle). The vowel between /t d/ and a final /l/ is deleted (lateral plosion).

5. Syllabic [n] as an allophone of /n/:
   It occurs when an alveolar stop /t/ or d occur before a homorganic nasal /n/ as in (sudden, sadden, student). The vowel between /t d/ and final /n/ is deleted (nasal plosion).
6. **devoiced [r w l] as allophones of /r w l/:**
   /r w l/ are voiceless when they follow one of the voiceless stops /p t k/ as in (pry, try, cry).

7. **Rounded [t d k g p ]/ as allophones of /t d k g p b /:**
   stops are slightly rounded when they occur in clusters in which /w/ is the second element as in (dwell, twin, quick).

8. **Velarized [I] as an allophone of /l/:**
   In British English, final /l/ is strongly velarized after a vowel as in (feel). But it is light before a vowel as in (leaf).

9. **Rhotasized vowels as allophones of vowels:**
   vowels = retroflex vowels = r-coloring of a vowel. They occur when a vowel is followed by /r/ as in (beard, bored, hard, board, poor, tire, hour).

10. **[d] as an allophone of /t/:**
    In American English /t/ has an allophone [d] when it occurs between stressed and unstressed vowels as in (matter, sitter, butter, letter, little, kettle).

**Arabic Allophones**

1. **[p] as an allophone of /b/:**
   It occurs before voiceless consonants as in:
   /ka ta bt/  [ka ta pt]  ﺮﻴﺒﺒ
   /ha bs/  [ha ps]  ﻦﻴＯ

2. **aspirated [t k] as allophones of /t k/:**
/t k/ are aspirated when they appear in the beginning of a stressed syllable and are released in word final position as in:
/tuut/ [tuut]  ÉæÉ  /sa ma k/ [sa ma k]  Őāš

3. **velarized [l] as an allophone of /l/:
   it occurs contiguous to /t d d s / as in the words ((Óá i Őáì.

4. **emphatic vowels as allophones of plain vowels:**
The vowels /a a , uu a , u/) have emphatic allophones when they occur contiguous to /t d d s l r q/ as in:
ÉæŐá  ÉæŐá
BČí  BČí
ÓČí  ÖČí
ĬČā  ŐČā

4. **emphatic [r] as an allophone of plain /r/:**
/r/ has an emphatic allophone when it occurs before or after /a , a a u , uu/ as in: ÑČí  ÍŇæă  ÎŇÉ ĖŇÉ

**English Syllable Structure**

<table>
<thead>
<tr>
<th>syllable type</th>
<th>example</th>
<th>transcription</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>a</td>
<td>/ / or / /</td>
</tr>
<tr>
<td>CV</td>
<td>the</td>
<td>/d / , /di/</td>
</tr>
<tr>
<td>VC</td>
<td>eat</td>
<td>/iyt/</td>
</tr>
<tr>
<td>CVC</td>
<td>sit</td>
<td>/sit/</td>
</tr>
<tr>
<td>CCV</td>
<td>tree</td>
<td>/triý/</td>
</tr>
<tr>
<td>VCC</td>
<td>east</td>
<td>/iyst/</td>
</tr>
<tr>
<td>CCVC</td>
<td>stood</td>
<td>/stud/</td>
</tr>
<tr>
<td>CCCVC</td>
<td>street</td>
<td>/striýt/</td>
</tr>
<tr>
<td>CCCVCC</td>
<td>streets</td>
<td>/striyts/</td>
</tr>
<tr>
<td>CCCVCCC</td>
<td>strengths</td>
<td>/strehqs/</td>
</tr>
</tbody>
</table>
Arabic Syllable Structure

1. There are three syllable types in Arabic:
   a. super heavy syllables CVVC & CVCC.
   b. heavy syllables CVC & CVV.
   c. light syllable: CV.

2. Syllable formation in Arabic is very regular.

3. No syllable in Standard Arabic begins with V or CC. All Arabic syllables must begin with a single consonant; the simplest type is CV, (a consonant and a vowel). E.g: /hu-wa/ , /sa- ri-ba/ with two and three short syllables.

4. Within any stretch of junctured utterance, the only admissible syllabic structures are CV, CVV, and CVC. Before a break in utterance or pause, the structures CVVC AND CVCC are also admitted as in /fiyl/ , /quilt/ Ýíá i ḏâÉú.

English Stress

According to Christophersen (196) , English has the following stress rules:

(a) The great majority of two-syllable words are stressed on the first syllable, e.g.: never, breakfast, Monday.

(b) A number of words have two different stress patterns according to whether they are verbs or nouns, e.g.: absent, accent, conduct, convict, digest, separate, perfect, permit, present, suspect, transport.
(c) When a suffix is added to a word, the new form is stressed on the syllable as was the basic word, e.g.:

- abandon
- happy
- reason
- develop

- abandonment
- happiness
- reasonable
- development

(d) Words ending in -tion, -sion, -ic, -ical, -ity, almost always have primary stress on the syllable preceding the ending, e.g.:

- public
- biology
- contribute
- economy

- publicity
- biological
- contribution
- economical

(e) If a word ending in -ate or -ment has only two syllables, the stress falls on the last syllable if the word is a verb, but on the first syllable if the word is a noun or an adjective. When stressed, the ending is pronounced [eyt], [m  nt]; when unstressed, it is pronounced [ t], [m  nt], e.g.:

- create
- inflate
- climate
- private
- ferment
- lament

- debate
- locate
- senate
- cognate
- torment
- comment

(f) If a word ending in -ate, -ment has more than two syllables, the main stress will fall on the third syllable from the end. In verbs, the final syllable is pronounced [eyt], [m  nt]; in nouns it is pronounced [ t], [m  nt], e.g.:

- demonstrate
- implement
- fermant
- fortunate

- implement
- delicate
- certificate
- ornament
- intimate
compartment  duplicate  estimate  delegate
separate  supplement  complement  experiment

(g) compound nouns have a primary stress on the first component, e.g.:
    drugstore  thoroughfare  weatherman

(h) In compound verbs, the primary stress falls on the second component, e.g.:
    understand  overlook

(i) in the intensive-reflexive pronouns, the stronger accent falls on the last syllable, e.g.:
    myself  yourself  ourselves

(j) Numbers ending in -teen may receive primary stress on either syllable, e.g.:
    thirteen  fourteen

(k) In words ending in -ion, -sive, the stress falls on the last vowel before the ending, e.g.:
    religion  companion  opinion
    protection  revolution  occasion
    aggressive  exclusive  offensive
    declaration  discussion  comprehension

(l) The majority of English compounds have single stress, e.g.:
    banana-skin  bedroom  blacksmith
    doorstep  flowerpot  green house
    birthday  earthquake  house-keeper

(m) All compounds with a present participle, as the first element, have a single stress, e.g.:
(n) A double stress is used in compounds of two nouns, if the first noun indicates the material of which or with which the second is made, e.g.:

- gold coin
- gold dust
- gold watch
- glass case
- metal wire
- lead pencil

(o) A double stress is used in compounds consisting of two nouns, each indicating a different characteristic of the same person or thing, e.g.:

- boy scout
- girl guide
- woman teacher

(p) In most sentences, some words are more important than others and we indicate this by the way we stress or unstress them. The following words are usually unstressed:

- articles: a an the
- prepositions: to of in etc.
- personal pronouns: I me he him it etc.
- possessive adjectives: my his your etc.
- relative pronouns: who that which etc.
- conjunctions: and but that as if etc.

(q) The following words are usually stressed: nouns, verbs, adjectives, adverbs, demonstrative interrogatives, e.g.:

- I shall deliver it to you.
- He eats three full meals each day.
- In an hour, it will be ready to turn over to you.
- This red rose is to be planted here.

Arabic Stress
In Arabic, there are three word stress levels: primary, secondary and weak. Arabic stress is predictable; i.e., one can determine where stress falls in Arabic words. The following is a summary of Arabic stress rules:

(i) If a word contains one super heavy syllable or more, stress falls on the last super heavy syllable as in:

- /ka-tapt/ \(\beta\hat{E}\hat{E}\hat{E}\hat{u}\)
- /ki-ta a b/ \(\beta\hat{E}\hat{C}\hat{E}\)
- /taa-li- ba a t/ \(\emptyset\hat{C}\hat{O}\hat{E}\hat{C}\hat{E}\)
- /ma -na a -diyl/ \(\ddot{a}\hat{a}\check{C}\ddot{i}\ddot{i}\hat{a}\)
- /taa-wuws/ \(\emptyset\hat{C}\ddot{a}\hat{a}\ddot{O}\)
- /ta-waa-wiys/ \(\ddot{O}\hat{a}\hat{C}\hat{a}\hat{a}\ddot{O}\)
- /ya-quw- luwn/ \(\ddot{i}\hat{a}\hat{e}\hat{a}\hat{a}\ddot{a}\)
- /ta -qaa-sa -muwh/ \(\dot{E}\hat{p}\check{C}\ddot{O}\ddot{o}\hat{a}\hat{a}\)
- /mu-ka a -la -ma a t/ \(\ddot{a}\hat{B}\ddot{C}\check{a}\ddot{a}\ddot{C}\hat{E}\)

(ii) If a word contains heavy and light syllables, stress falls on the heavy syllable before the final syllable (non-final heavy syllable) as in:

- /mus-taq-bal/ \(\ddot{a}\hat{O}\check{E}\hat{p}\hat{e}\hat{a}\)
- /mus-ta?-ma-ra/ \(\ddot{a}\hat{O}\check{E}\hat{U}\hat{a}\hat{N}\hat{E}\)
- /mas-ta-ra/ \(\ddot{a}\hat{O}\ddot{O}\hat{N}\hat{E}\)
- /?is-taq-ba -la / \(\check{C}\hat{O}\hat{E}\hat{P}\hat{E}\hat{a}\)
- /fas-sa-ra/ \(\ddot{Y}\hat{O}\hat{N}\)
- /muh-sin/ \(\ddot{a}\hat{i}\hat{O}\hat{a}\)

(iii) If a word contains light syllables, Stress falls on the first syllable as in:

- /ka -ta - ba / \(\beta\hat{E}\hat{E}\)
- /hi-ya / \(\ddot{a}\hat{i}\)
- /a n-ta -/ \(\ddot{C}\hat{a}\hat{E}\)
- /sa -dja -da / \(\ddot{O}\ddot{i}\ddot{i}\)
English Intonation

A. In English, rising-falling intonation is normally used at the end of:
   - Simple statements of facts (declarative statements), e.g.:
     - This is my sister.
     - He hasn't said a word.
   - Commands:
     - Come to see me.
     - Give me the book?
   - Questions which begin with an interrogative word, i.e., Wh-questions:
     - What's the matter?
     - How are you feeling?
     - Why is he angry?

B. In English, rising intonation is normally used in the following cases:
   - at the end of yes-no questions:
     - Are you ready?
     - Did you see it?
     - Does he like it?
   - In requests:
     - Do shut the door.
     - Let me know how we get on?

C. In utterances containing an element of protest or surprise:
   - That wasn't my idea.
   - Be patient.
   - Whose idea was it?
Arabic Intonation

(1) In Arabic, falling intonation is used at the end of:

- declarative statements: دَأَإَ چَأَإَئ چَأَئ چَأَئ چَأَئ چَأَئ
- in commands: چَلَأَئ ےَأَذ
- in Wh-questions: چَأَئ ےَأَذ چَأَئ چَأَئ چَأَئ چَأَئ

(2) In Arabic, rising-falling intonation is normally used at the end of:

a. yes-no questions: ےَأَذ چَأَئ چَأَئ چَأَئ چَأَئ
b. in utterances containing an element of protest or surprise:
   چَأَئ ےَأَذ چَأَئ چَأَئ چَأَئ
   چَأَئ ےَأَذ چَأَئ چَأَئ چَأَئ
   چَأَئ ےَأَذ چَأَئ چَأَئ چَأَئ
   چَأَئ ےَأَذ چَأَئ چَأَئ چَأَئ
   چَأَئ ےَأَذ چَأَئ چَأَئ چَأَئ

c. in vocatives: چَأَئ ےَأَذ چَأَئ چَأَئ چَأَئ

d. in requests چَأَئ ےَأَذ چَأَئ چَأَئ چَأَئ

English Juncture and Pause

Juncture is a type of boundary between two morphemes. Juncture helps the listener distinguish between pairs such as: see Mill and seem ill; good buy and good-bye in the following sentence:

- Did he see Mill?
- Did he seem ill?
- Have a good buy before you say good-bye

Arabic Juncture and Pause

- In pause forms, final short vowels are dropped, case endings are dropped or shortened, e.g.:
  - ېَأَذ ېَأَذ ېَأَذ
  - ےَأَذ ےَأَذ ےَأَذ
  - ےَأَذ ےَأَذ ےَأَذ
  - ےَأَذ ےَأَذ ےَأَذ
  - ےَأَذ ےَأَذ ےَأَذ
- Words are stripped of final -n which follows the case ending, e.g.:
• Feminine ending is reduced from /-at/ to /-ah/, e.g.:
  o ííÇÉ ííÇ

• The vowel [ ] is inserted at the end of a word ending with the feminine
  morpheme /-at/ if it is followed by a word beginning with the definite article
  /-al/. e.g.:
  o îÇÁÊö ÇáÈäÇÊ

Interference Problems

(1) Long consonants (geminates) occur very frequently in Arabic, but in English, they occur only across word boundary, e.g.:
  a. that time big gun
  b. immoral illegal

Arabic speakers tend to pronounce double consonants in English words like: account, suppose, immediately, as geminates.

(2) Since the Arabic sound system does not have the phonemes /p/, /v/ and /t/; Arabic speakers tend to pronounce words containing those phonemes with /b/, /f/, /l/.

(3) There are no consonant clusters (cc,ccc) in word initial position or in word medial position within the same syllable. As a result, Arabic speakers tend to insert the vowel / / to break the consonant cluster in words like: about, spring, extra, school, street.
(4) In Arabic, emphatic vowels appear adjacent to emphatic consonants (in the same syllable) and plain vowels appear adjacent to plain consonants. This is not true in English. Therefore, whenever the vowels /a, /æ/ appear in a word, Arabic speakers tend to emphasize the adjacent consonants in words like: sun, must; or they tend to pronounce /a/ as /æ/ in words like: country, but, Macintosh, what, some, bus.

Exercises

1. Transcribe the following English words using the International Phonetic Alphabet:

   speaker, foundation, enough, thought, concise, box, bridges, inches, vision, pleasure, world, appointed, butter, bottle.

2. Transcribe the following Arabic words using the International phonetic Alphabet:

   ÚÒîÍë ÐÇÑÉ Ì Õê Ï ÐÀê Ï ÐëÇê Ï ÇßàÇ Ï ÇáÝÇê Ï ÝêÇê

3. Break the following English words into syllables:

   exactly        explosion        conditional
   contemporary   arrogant         approximately

4. Divide the following Arabic words into syllables:

   ÓæøÇñ        ÇáöiÇñê        Íçäûãêç
   Çáãûãæà       ÇöêóûÇñã       Çöêêêâãêåø

5. Mark the syllable with the primary stress in the following English words:

   comment        imply        implication
   impress        impressive    impression                impressively
   management     manager      manage
   contemporary   dictionary
hospitable  hospitality
psychology  psychological  psychologically  psychologist
innate  invigilate  invigilation
corporate  vertebrate  celebrate
weekend  local traffic  moonlight
paper basket  gold medal  smoking area
bus driver  ancient ruins  electrical engineer

6. **Mark the primary stress in the following Arabic words:**

ÇäÊÕÇÑ  ÊßÑøÑ  ãæÚÏ
æÜíáí  ãæÇÚíí  áæÇÚííáÇ
ÇäOïÇ  ÇŒÝÔÇÑ  ïOÉÝÔÑ
ÑOÉÝÔÑia  ÏOÉÝÔÑ  ÇŒÝÔÑê
ÇŒÝÔÇÑÇëääÝôÑ