Announcements

- No office hours this Wed.
- Readings for Tuesday are uploaded on the syllabus table online. Basic introduction to word structure in Arabic (morphology).
- Screening of The Writing Code this Thursday. Part 1 of homework #2 is a set of four questions on the movie.

Today's agenda

- The consonant system in CLA and changes in the dialects.
- The vowel system in CLA and changes in the dialects.

What's phonetics?

- Phonetics is the study of speech sounds in human language.
- In this class, we focus on articulatory phonetics: how speech sounds are articulated by the human vocal tract.
- We also learn the main symbols and diacritics used to transcribe human sounds in the International Phonetic Alphabet.
- We will focus first on the sound system of Classical Arabic, and move on to the dialects afterwards.

Phonetics
Consonants vs. Vowels

• There are two major types of sounds in human language: consonants and vowels. How do they differ?
• In terms of articulation, consonants are produced when the airflow is obstructed in the vocal tract, while vowels are produced with relative free flow of the airstream in the vocal tract.
• Both consonants and vowels can be described in terms of a number of individual articulatory features.
• We start with consonants.

Articulation of Classical Arabic consonants

• Consonant sounds can be characterized according to three main phonetic properties:
  a) place of articulation,
  b) manner of articulation, and
  c) voicing.

Bilabial consonants

• Bilabial consonants are produced with both lips.
• In Classical Arabic, there are three bilabials:
  ﺏ/ـ ﻦ/ـ ﻭ/ـ
  - [b] as in ﺏﺎب
  - [m] as in ﻣﺮيضر
  - [w] as in ﻭد

Labiodental consonants

• Labiodental consonants are produced with the upper teeth and the lower lip.
• Classical Arabic has only one such consonant:
  ﻓ/ـ
  - [f] as in ﻓﺮصة

Interdental consonants

• Interdental consonants are produced with the tip of the tongue between the upper and lower teeth.
• There are three interdentals in Classical Arabic:
  ﺗ/ـ ﺪ/ـ ﺔ/ـ ﻲ/ـ ﻦ/ـ ﺔ/ـ ﺑ/ـ ﺪ/ـ ﺔ/ـ
  - [t] as in ﺗخرج
  - [d] as in ﺪدخول
  - [s] as in ﺪساحة
  - [n] as in ﺪنهر
  - [z] as in ﺔزعلاج
  - [l] as in ﺔلغا
Alveo-palatal consonants

- **Alveo-palatal** consonants are produced when the front part of the tongue touches the alveolar ridge and then the hard palate (that part of the mouth which is just behind the alveolar ridge).
- There are two alveo-palatal consonants in Classical Arabic: 
  -  살아 / $ʃ$ as in شمس
  - جيد / $dʒ$ as in جيد

Palatal consonants

- **Palatal** consonants are produced when the front part of the tongue raises towards the palate.
- Classical Arabic has only one palatal consonant: 
  -  يوم / $j$ as in يوم

Velar consonants

- Velar consonants are produced by raising the back part of the tongue towards the velum.
- Classical Arabic has three velar consonants:
  - خضاب / $x$ as in خضار
  - غريب / $ɣ$ as in غريب
  - كم / $k$ as in كم

Uvular consonants

- **Uvular** consonants are produced by raising the back of the tongue towards the uvula.
- There is only one uvular consonant in Classical Arabic: 
  - قريب / $q$ as in قريب

Pharyngeal consonants

- **Pharyngeal** consonants are produced at the pharynx.
- There are two pharyngeals in Classical Arabic: 
  - حادث / $h$ as in حادث
  - غُمر / $ʔ$ as in غمر

Glottal consonants

- **Glottal** consonants are produced at the glottis.
- Classical Arabic has two glottal consonants: 
  - أسرة / $ʔ$ as in أسرة
  - هنا / $h$ as in هنا
Manner of articulation

• Speech sounds are also differentiated by the way the airflow is affected as it travels from the lungs up and out of the mouth and nose. This is referred to as the manner of articulation for the sound.

Stops (aka plosives)

• Stops: These are produced by a complete obstruction of the airflow in the mouth, e.g., [b], [t], [tʰ], [d], [dʰ], [k], [q], and [ʔ].

• When the air escapes through the nasal, rather than the oral, cavity, nasal stops are produced, e.g., [m] and [n].

Fricatives

• Fricatives: These are produced by a partial obstruction of the airflow, where the passage in the mouth through which the air escapes is very narrow, causing friction, e.g., [f], [s], [sʰ], [z], [θ], [ð], [θʰ], [ʃ], [ɬ], [ɣ], [ɣ], [ʒ], [h], [ʔ], and [h].

Affricates

• Affricates: These are produced by a stop closure followed immediately by a slow release of the closure characteristic of the fricative.
• Classical Arabic has only one affricate: [dʒ].
• Some of the dialects, though, have [tʃ], [ts], and [dz].

Liquids (aka Approximants)

• Liquids: In the production of these sounds, there is some obstruction of the airflow in the mouth, but not enough to cause any real constriction or friction, e.g. [l].
• [l] is called a lateral approximant, because the air escapes through the sides of the tongue.

Trill

• A trill is produced by vibrations between the front part of the tongue and the alveolar ridge.
• The Classical Arabic [r] is a trill, as in Spanish and Italian.
Glides (aka Semi-vowels)

- **Glides**: These are produced with little or no obstruction of the air in the mouth, e.g. [j] and [w].
- When occurring in a word, they must always be either followed or preceded by a vowel, and in their articulation the tongue moves rapidly in a gliding fashion either toward or away from a neighboring vowel.

Voicing

- Consonant sounds are also divided into two types, **voiced** and **voiceless**, based on whether they are produced with or without vibration of vocal cords. For example:
  - [d], [z], [x], and [j] are voiced.
  - [t], [s], [y], and [h] are voiceless.

Classical Arabic consonant chart using the IPA symbols

<table>
<thead>
<tr>
<th>Arabic</th>
<th>English</th>
<th>Modern Standard</th>
<th>Egyptian</th>
<th>Anglo-American</th>
<th>Deutero</th>
<th>Traditional</th>
<th>Classical</th>
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<tbody>
<tr>
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http://www.uiowa.edu/~acadtech/phonetics/

- Link for the articulation of the consonants of American English, German, and Spanish. No Arabic ﹪, unfortunately. Still, pretty useful to see how consonants are articulated.

Consonants in the dialects

- The sound inventory of today’s Arabic dialects typically has less consonants than in CLA.
- This is due to certain CLA sounds being dropped and replaced by other sounds instead.
- Arabic dialects differ from Classical Arabic and from each other in their sound inventory.
- The consonant differences may not be too many, but some are salient enough to be able to identify speakers of certain dialects.
- Let us discuss some examples.

Interdentals: ثاء، ذال، ظاء in Egyptian

- Egyptian Arabic and most other sedentary dialects lost the interdentals [ѵ], [ѵ], and [ѵ].
- [ѵ] has generally merged with [t] in most contexts and occasionally with [s] in contexts that have MSA-flavor to them.
  - ثاء [tala:tah] تلث [talgh]
  - ذال [masalan] ثانوبة [sanawijjah]
Interdentals: ثاء، ذال، ضاء in Arabic dialects

• ظاء [ɒ] has merged with the [z] in Egyptian: 
  ذاك [zaː:kir] نذي [zakiː]

• ذال: Words with Classical Arabic [ð] are either pronounced with [dˈ] or with a new sound [z]^
  ذاكر [zaː:kɪr] ذكي [zakiː]

• ضاء: From [r] and -ذل: أظلّ [ʔaːlim] ‘unjust person’

The status of ض ض in modern dialects

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‘he hit’ ٓأَبْيَض ‘white’

Data from Holes (2004: 71).

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ةلَاف

• Egyptian changed the [q] into a glottal stop. قلب [ʔalb] ‘heart’ قدم [ʔadiːm]

• In Bedouin dialects, the [q] is pronounced as [ɡ]: قلب [ɡalb] ‘heart’ قدم [ɡadiːm]

• In some Arabic dialects, the [q] also became [k], particularly in rural areas. قلب [kalb] ‘heart’ قدم [kadiːm]

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Pronunciation of /q/ and /k/ in different dialectal groups (from Holes 2004: 74)

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• In some dialects, the [k] became a voiceless alveo-palatal affricate [tʃ]: قلب [tʃalb]

Note: [dʒ] and [ts] are affricates in some Arabic dialects.

Note: [z] = IPA [tʃ].
القاف as [q] in today’s dialects

- The [q] is still pronounced some words in Egyptian Arabic and other dialects today, e.g.,
  - الفقهاء – القرآن – استقلالة (resignation)
  - – الموسيقي – القوت المسلحة (armed forced)
- Why?
- These are typically words that have some ‘elevated status’ due to being borrowed from Fusha.
- Dialects, however, differ as to which words get assimilated to the dialectal phonology, and which words stay resistant to such an assimilation.

الجيوم

- The Classical Arabic [dʒ] sound is still retained in some Bedouin dialects, but has been lost for the most part from sedentary dialects.
- In Egypt, [dʒ] is replaced by [ɡ]; in the Levant by [ʒ]; in lower Iraq and the Gulf by [j].
  - جميل [ɡamiːl] in Egypt
  - [ʒamiːl] in the Levant
  - [jamiːl] in lower Iraq and the Gulf
  - [dʒamiːl] in some Bedouin dialects

Marginal sounds in the dialects

- We already mentioned the [q] in MSA borrowings: [saqaːfah]
- [ʒ] in foreign borrowings: جاكت [zaːkit]
- [v] in foreign borrowings: فيلا [vila]
- [p] in foreign words: باريس [pariːs]

Consonant clusters

- CLA does not allow two consonants in a row in initial position. Some of the modern dialects observe the same rule, e.g., Egyptian.
- The Maghrebi dialects, however, do allow such consonant clusters. Consider these examples from Algerian.
  - شوية [ʃwijja] (sweat)
  - السخانة [ssxaːna]

Breaking consonant clusters in Levantine

- Some dialects do not even like consonant clusters in final position.
- Speakers of such dialects insert a vowel between the two consonants to break the cluster. This process is called epenthesis.
- Many Levantine Arabic speakers epenthesize an [i] vowel in a word-final consonant cluster:
  - جسر ’(bridge’) [ʒisr] → [ʒisir]
  - ليس ’(clothes’) [libs] → [libis]

Epenthesis in Egyptian vs. Iraqi

- In Egyptian Arabic, epenthes is used whenever three consonants are potentially next to one another at a syllable boundary.
- For example:
  - قلت لك [ʔulṭ + lak] → [ʔulṭ-i-lak]
- Iraqi Arabic also prohibits three consonants in a row, but it applies epenthesis in a different way:
  - قلت لك [gilṭ + lak] → [gilṭ-i-lak]
Epenthesis in loan words

• In Classical Arabic and many of today’s dialects, a sequence of two initial consonants is not allowed.
• As a result, when a foreign word is borrowed into an Arabic dialect with an initial consonant cluster, a vowel is typically epenthesized to break the consonant cluster.
• These are examples from Egyptian Arabic:
  - *studio* is pronounced [ʔistudjuː]
  - *Sprite* is pronounced [ʔisbirajt]

A note on phonetic transcription

• Notice that some books, including the textbook, may use some non-IPA symbols in phonetic transcription. But these systems are all inter-translatable. Nothing substantive hinges on which system one uses.

Next class agenda

• Vowels.
• Discussion questions for chapter 1.
• Arabic morphology. Follow the link on the syllabus table for the reading from Ryding’s book.