The VOT of Arabic [ʔ] Produced by English Speakers

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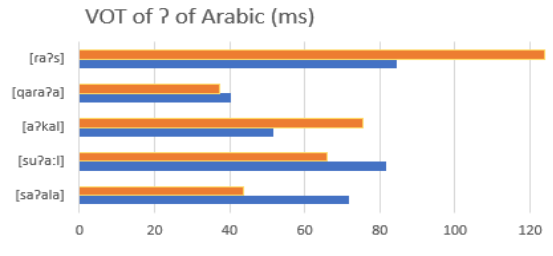
Abstract

Arabic and English have the same number of **stops**. However, Arabic [q, ʕ, ʔ], do not occur in English. This pilot study examined the strategies that speakers of American English employ in producing **Arabic [ʔ]**. We have measured, compared, and contrasted the **VOT** produced by English speakers to those of Arabic speakers.

Background information

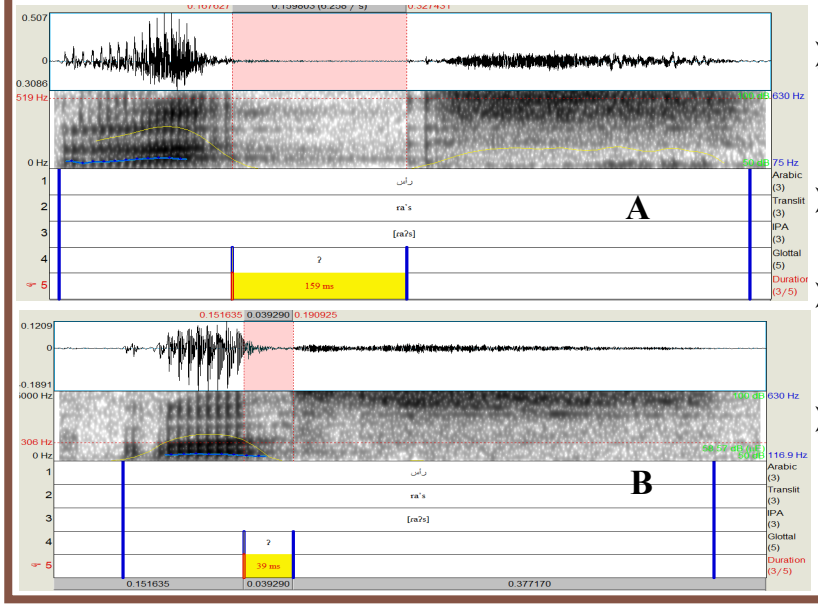
- Participants were 3 Male **Native Arabic** speakers and 3 Male **Native English** Speakers. Mean age is 29 yrs old.
- The Arabic glottal [ʔ] is called ***Hamza*** in Arabic: ء
- The position of a *Hamza* can be initial, medial and final
- English has the segment [ʔ] as a allophone of /t/ & /d/ but not a phoneme. Try to say: kitten
- **V**oice **O**nset **T**ime (VOT) is used to measure **the duration** of this glottal feature.
- We will measure the **J**ust **N**oticeable **D**ifference (JND) for duration between participants. JND for Duration is **≥ 10 milliseconds** (ms)**.**



	[saʔala]	[suʔa:l]	[aʔkal]	[qaraʔa]	[raʔs]
Eng34Miami	25	91	72	44	73
Eng27London	54	31	65	45	141
Eng40DC	136	123	18	32	39
Mean ENG VOT	**72**	**82**	**52**	**40**	**84**
Arabic26Iraq	26	32	82	39	95
Arabic21Bahrain	55	81	67	30	118
Arabic26Iraq	50	85	77	43	159
Mean Arabic VOT	**44**	**66**	**75**	**37**	**124**
VOT Difference	**28 ms**	**16 ms**	**24 ms**	**3 ms**	**40 ms**

Results

- **All** English Native participants were able to produce the Arabic glottal [ʔ].
- Only **1 utterance** was within the noticeable band **under 10 ms**.
- **All other** utterances were marked by a **noticeable** difference with Native Arabic speakers.
- **Negotiating** [ʁaʔs] was the **most salient feature** for English Native speakers with **over 40 ms of difference**.



Methodology

- We measured **5 utterances** using the Praat software.

  [saʔala] [suʔa:l] [aʔkal] [qaraʔa] [ʁaʔs]

  سأل / سؤال / أكل / قرأ / رأس

- VOT data was collected to compare how accurate Native English speakers are with negotiating the unfamiliar **[ʔ]**
- **Spectrograph A** shows [ʁaʔs] by a Native Arabic speaker and **B** by an Native English speaker. Note the **duration** difference (pink band) between them.
- Did you know?

  Glottal **[ʔ]** is disappearing from many Modern Standard Arabic (MSA) words. This same word [raʔs] is now said [ra:s] in Palestinian dialect

Conclusion

Although English does not have a phoneme for glottal [ʔ], Native English speakers **are able to** produce it.

With a noted trend in MSA of glottal [ʔ] disappearing in some dialects, this **may benefit** English Native speakers in being less distinguished.

Selected References

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