As mobile phone technology keeps on improving, we may wonder to what extent telephone speech in the 21st century may be usable in sociophonetic analyses, especially in contrast to landline telephone speech. Linguistic analysis has been conducted for years based on recordings of mobile transmitted speech [1, 2, 6], but its primary use pertains to forensic phonetics [4, 8]. Nevertheless, projects such as the TELSURE dialect survey, conducted in 1990’s with landline data [10, 11], stand to show that gathering speech over the phone has many potential advantages to offer a sociolinguist, especially regarding vowel variation. Our study presents an analysis of mobile transmitted speech in order to establish the potential usefulness of telephone data gathered with the technology of 2018 with a focus on consonants.

It is well known that mobile speech quality supersedes that of landline speech quality [5, 9]. This is mainly due to significant signal improvements in the Global System for Mobile Communications (GSM) network transmitting the signal in [Anonymous Country] with the Adaptive Multi-Rate (AMR) wideband codec [3]. A range of studies (e.g. [2, 7]) have indeed shown that network-related algorithms alter the acoustic signal in noisy as well as quiet environments to facilitate perception rather than being faithful to the acoustic input. However, for the sociolinguist, the problem of this research is that it is unclear how the network codecs affect those parts of the acoustic signal that translate to linguistically meaningful units, such as specific consonants and consonantal features.

Our study aims to establish whether, and to what extent, voiceless obstruents are affected by the GSM network and the AMR Wideband codecs. We focus on obstruents because these are acoustically most variant in frequencies and intensity and are therefore likely to be affected and mistaken for noise by the network; e.g. aspiration is very easily mistaken for noise and thereby likely to be affected by the transmission, as indeed suggested by [12]. More specifically, we investigate the potential mobile effect on /h, d/ in wordlist data (using the hood lexical series) and /h, d/ and /f, θ, ð, s/ in connected speech, as produced by 6 females. The data for both tasks was obtained in 1. a quiet controlled setting, and 2. in a natural non-optimal outdoor setting. In both cases, the signal was recorded from a single receiving phone in our phonetics lab.

The findings indicate a partial or complete deletion of the obstruents in the received signal across the conditions: /h/ and aspiration suffer the most and bursts are generally attenuated in intensity. Similarly, /θ/ and /ð/ become less intense and more alike. Even with the most recent technological advances then, sociophoneticians should not use mobile phone data to investigate consonantal variation. However, these findings raise two important points. Firstly, could potential transmission related alterations of the acoustic signal interact with the introduction and transmission of sound changes related to obstruents (such as TH-fronting)? Secondly, to what extent do listeners rely on the context when hearing and interpreting mobile phone transmitted speech, considering the compromised quality of the signal?
REFERENCES


