IMITATED OR AUTHENTIC? LISTENERS' JUDGEMENTS OF FOREIGN ACCENTS

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ABSTRACT

This paper presents a perception experiment which investigates (1) whether listeners are able to distinguish between authentic non-native accents and non-authentic (imitated) accents and (2) whether they are able to identify the accents being produced. The results show that native-German-speaking listeners are able to identify (to name) imitated accents better than authentic non-native accents, probably due to the presence or absence of stereotypical patterns being used by the speakers. However, listeners were less able to judge the authenticity of the presented accents which probably can be related to the wide variation in the speakers' ability to imitate an accent.
Keywords: forensic phonetics, accent imitation

1. INTRODUCTION

It has been shown that listeners are capable of identifying a foreign accent even in reversed speech samples [4]. This was also the case after stimuli duration had been equalized. Assuming that reversal and equalization would eliminate factors such as phonological errors (e. g. insertion, deletion, substitutions), foreign-accented intonation contours or rhythmic patterns as well as lowered speaking rate, it was concluded that long-term properties of speech, such as the speaker's voice quality, also play a role in the detection of a foreign accent.

In the perception experiment presented in this study, the main question was not whether listeners are able to identify the presence of a foreign accent, but whether they are able to judge if the accent they are hearing is authentic or being imitated by a speaker whose mother tongue is their own. Listeners' ability to identify which foreign accent being produced was also investigated.

In an American English context, Tate [6] investigates the ability of untrained listeners from Florida to distinguish between an authentic and imitated accent from North Central Florida ("marked Southern accent"). Listeners were also required to identify whether the speaker was producing General American or dialectal speech. Listeners correctly identified both the General American as well as the authentic southern dialect. Furthermore, in two thirds of the cases listeners were able to identify an imitated accent.

Markham [3] investigates the performance of a group of speakers in imitating various Swedish dialectal accents, and the performance of linguistically trained listeners in identifying the accents as well as determining whether the accents were authentic or a disguise. The conclusion from this study is that "there is a wide variation in the ability of even highly motivated and perhaps phonetically talented speakers convincingly and consistently to create natural-sounding accent readings for dialectal accents other than their own." [3, p. 298].

Both Tate [6] and Markham [3] are concerned with judgements of authenticity in dialects of the listeners' own mother tongue. The aim of the perception experiment presented here is to investigate whether such findings can be extended to authenticity judgements for a foreign accent. In previous studies as well as in reports from practical forensic work, it is stated that it is relatively easy to detect an imitated foreign accent. It is assumed either that the speaker retains much of the phonetics of his/her mother tongue during imitation, relying largely on lexical and grammatical features for disguise [2], or that s/he makes serious errors due to inadequate linguistic competence in the language whose accent is being imitated [5, 1].

Specifically, three hypotheses were tested in the present experiment:

1. Listeners are able to distinguish between an authentic and a non-authentic foreign accent.
2. Listeners are able to identify (name) the imitated accent because the speaker produces stereotypical patterns.
3. Listeners have difficulties identifying (naming) the authentic accent because expected stereotypical patterns are missing.

2. EXPERIMENT

2.1. Stimuli

The stimuli used in this study are drawn from a corpus of 37 native and 10 non-native German speak-

ers each producing a range of read and spontaneous texts. All audio files were recorded in a sound-treated room directly to PC, digitizing at a sampling rate of 16 kHz and an amplitude resolution of 16 bits.

For the present study, the sentence *„Die verstärkten Sicherheitsvorkehrungen der Banken könnten Räuber abgeschreckt haben.*" ("Increased security measures by banks may have deterred robbers.") was used.

There was a total of 35 stimuli spoken by 34 speakers:

- 15 native German speakers imitating a French accent; seven native German speakers imitating an American-English accent and one native German speaker imitating both a French and an American-English accent.
- Six non-native German speakers (four native French and two native American-English speakers), all fluent users of German. They all exhibited a noticeable foreign accent in their production of German.
- A foil group of five speakers consisting of one native Italian, one native Russian, one native Czech speaker as well as one native German and one bilingual (Russian-German) speaker both imitating a Russian accent.

2.2. Listeners

The listeners were 22 native German speakers (18 female, 4 male) recruited from an advanced phonetics course. They ranged in age from 20 to 26 years, with a mean of 22.7 years. All named English and most of them French as their foreign language(s) with different levels of active and passive competence. Listeners reported normal hearing.

2.3. Procedure

Before the experiment began, the listeners were told that the stimuli they were about to hear were spoken by both native and non-native German speakers.

The 35 stimuli were presented in 6 blocks, with 5 different randomizations (=210 stimuli). Each stimulus was introduced by an 880 Hz tone lasting one second, followed by a one second pause. A 5 second pause followed each stimulus in the first five blocks. This pause was 10 seconds in the final block. There was short break lasting approximately 30 seconds between each of the blocks.

For the first five blocks the listeners were instructed to make a binary judgement of each stimulus item, indicating whether the item was spoken with an authentic or a non-authentic (imitated) accent. For the last (sixth) block the randomisation was the same as it had been for the fifth block. Here the subjects again had to make a binary judgement of each stimulus item, indicating whether the accent was authentic or non-authentic (imitated), and additionally were asked to name the accent they recognised.

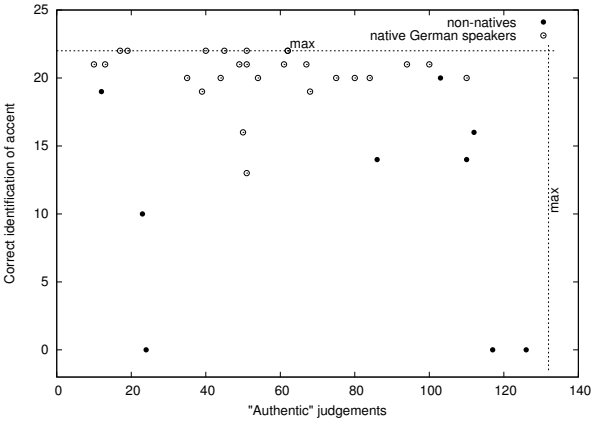
The items were presented in a sound-treated room via loudspeakers at a comfortable volume. The listeners indicated their responses on a questionnaire.

There is a total of 132 judgements of the authenticity of each speaker's accent (22 listeners x 6 blocks). Regarding the identification of the accents, there is a total of 22 judgements for each speaker (one judgement per listener). In the analysis certain language identifications made by the listeners were grouped together: "English" includes "American English", "Australian English" and "English"; "Slavonian" includes "Russian", "Czech", "Polish", etc.

3. RESULTS

Each point in Figure 1 represents the number of correct accent identifications for one speaker plotted as a function of the judged authenticity. German mother-tongue (26) speakers are represented with open circles, non-Germans (9) with filled circles. The bilingual (Russian-German) speaker has been put with the German mother-tongue group since he does not exhibit any Russian accent features when speaking German.

Figure 1: Correct accent identification as a function of judged authenticity. The dotted lines represent the maximum number of judgements.



As can be seen clearly from Figure 1 the accents being imitated by most of the German speakers were correctly identified, indicating successful accent imitation within a German context on the part of the speakers, as well as competence on the part of the listeners to identify a particular foreign accent. Of considerable interest are the worse judgements made for the non-German speakers. In only two cases (out

of 9) was the accent of the non-German speakers identified with similar accuracy to that of the native Germans. Most strikingly, none of the listeners were able to correctly identify the accent of three of the non-German speakers. By contrast, even the accent of the worst German speaker was correctly identified 13 times.

Cutting across the findings for correct accent identification are judgements on authenticity. Although Figure 1 shows that German speakers were relatively successful at producing an identifiable foreign accent, there is large variation (range: 10–110; mean = 55) in their ability to do this authentically. Interestingly, the three German speakers judged to be least authentic imitated American English, whereas the three German speakers judged to be most authentic all imitated French accents.

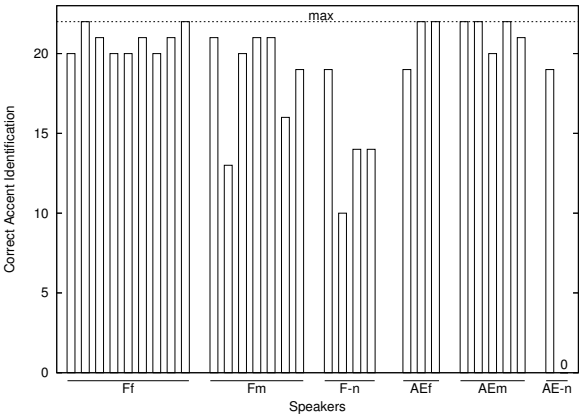
None of the 16 speakers imitating a French accent received an authenticity rating below 26.5 %. In other words, although listeners were aware that some of the speakers they were listening to were German natives, none of the speakers was correctly judged as a German by the whole listener group. The reverse is also true, i.e. none of the German speakers was consistently incorrectly judged to be a non-native. Almost one third of the speakers had an authenticity rating of 50–75 % and thus were incorrectly judged to be authentic non-native German speakers.

Two native German speakers imitating an American English accent received authenticity ratings above 50 %. The remaining six native German speakers were incorrectly judged to be non-natives in less than half the listener judgements.

Although the accents of the non-Germans were less identifiable, 6 out of 9 were still judged to be producing authentic foreign accents by the majority of the listeners. Only 4 out of the 26 German speakers attained a similar level of perceived authenticity. Significantly, two out of three of the unidentified accents attained highest overall authenticity ratings. However, the other unidentified accent received an extremely low authenticity rating, strongly suggesting that non-identification alone is not a sufficient criterion for accent authenticity.

Figure 2 summarizes the number of correct accent identification of speakers with a French accent (left) and an American-English accent (right). A number of patterns are identifiable in Figure 2. The majority of native German speakers imitating a French accent were correctly identified, whereby the female speakers' accents were more successfully identified than the males' accents. There is much larger variation in the identification of the four native French speakers. Whereas one speaker's accent was successfully identified by 19 out of 22 listeners, another speaker's accent was only correctly recognised by less than half of the listeners.

Figure 2: Correct accent identification for each speaker from the French and American-English group. F: French accent; AE: American English; f: female native German; m: male native German; -n: non-native German.



Listeners were also successful at correctly identifying the imitated American-English accents. Five out of eight of the speakers were considered to be producing an English accent by all the listeners. For the remaining three speakers the correct identification level was also high (19–21). The identification of the two native American-English speakers was very different. Whereas the accent of one speaker was correctly recognised by 19 listeners, the other speaker's accent was not identified by any of the listeners. In this case, the most named accent (nine listeners) was Russian, with a further five listeners unable to make any identification whatsoever. In such a case, it is worth speculating about the phonetic characteristics of this speaker's accent which so successfully concealed his true linguistic background. Although this speaker had a marked foreign accent he had overcome certain errors often typical of an American English accent in German, e.g. the retroflex or molar approximant correlate of /r/, but at the same time had managed to acquire features which might be considered typical of a speaker with a Slavonian linguistic background: apico-alveolar tapped correlate of /r/; dorso-prevelar (i.e. [x̟] not [ç]) friction for /x/ following a front vowel. So, for instance, in his pronunciation of *Sicherheitsvorkehrungen* [zɪx̟əfiaɐ̯ts|fɔɻkʰɛrʊŋən] we find a number of features which are both non-German as well as non-American English.

In the foil group of five speakers, the native Italian

speaker and the native Russian speaker were incorrectly identified by the whole listener group, while the remaining three speakers with Slavonian accents were correctly identified as such by most (16–22) of the listeners. Twelve listeners were unable to make any judgement as to the accent of the native Russian speaker, five thought he was French and five even considered him to be a native German speaker not imitating any accent. The Italian speaker was considered to be Russian by eight listeners, while five listeners were unable to make any accent judgement.

4. DISCUSSION

The results of this study provide support for hypotheses 2 and 3: although listeners are capable of correctly identifying imitated accents, they are not very successful at identifying *authentic* accents. This would suggest that native German speakers and listeners seem to be in strong agreement about the stereotypical phonetic patterns which they consider characterise a particular foreign accent. The accent being imitated by all but two native German speakers was successfully identified by 19–22 listeners. Torstensson et al. [7] show that there is much agreement in the types of patterns speakers use during foreign accent disguise and conclude that speakers have a cognitive prototype of an accent, which exhibits a great deal of similarity across a speaker group. Our findings show that true non-native speakers apparently produce a number of patterns which do not meet up to listeners' expectations.

Although the performance of the listeners at identifying an accent was generally good, their ability to judge the authenticity of the accent being produced/imitated was less so, providing little support for hypothesis 1, that listeners are able to tell whether somebody is imitating an accent or is in fact a genuine non-native speaker. This result concurs with the findings in [3]. However, the high level of variation in judged authenticity for both the group of accent-imitators as well as the genuine non-native speakers suggest on the one hand differences in the ability of speakers to imitate a foreign accent authentically, and on the other hand, different levels of active foreign language competence, in this case, German.

In the larger study, of which this perception experiment is a part, a systematic investigation of the phonetic patterns employed in imitation is being carried out, and comparisons are being made with the patterns exhibited by genuine non-natives. Interestingly, it would seem that authenticity is questioned in both imitators and genuine non-natives if typical German phonetic/phonological patterns are present, i.e. have been successfully acquired by the non-native or unsuccessfully concealed by the imitator. So, for instance, three of the non-natives most often considered to be non-authentic had the fewest foreign-accent characteristics, and two of these exhibited regional features: relative backness of /a/ and /aː/ in "Banken" ("banks") and "haben" ("have") as well as backness of the vocalic correlate of /ər/ ([ɐ]) at the end of "Räuber" ("robber"). Native German speakers considered to be producing non-authentic French accents often continued to produce syllabic nasals rather than vowel-nasal sequences in words such as "haben" ("have"), i.e. [haːbm̩] rather than [haːbən].

The extent to which the results of this perception experiment will correlate with the findings of an auditory and acoustic investigation remains to be seen. So, for instance, Torstensson et al. [7] show that missing features typical of a particular language together with the presence of other atypical features can indicate that an accent is being imitated.

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