DIFFERENCES BETWEEN FOREIGN ACCENT SYNDROME AND REAL FOREIGN ACCENTS

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ABSTRACT

Foreign accent syndrome FAS) is a motor speech disorder in which patients develop a speech accent which is notably different from their premorbid accent. This paper investigates the perceptual differences between speakers with FAS, speakers with a real foreign accent and a group of control speakers. From the results it appears that speakers with FAS are situated between the other groups at all levels of analysis. This suggests that the foreign accent in FAS does not sound as foreign as in speakers with a real foreign accent, but not as native as the native control group.

Keywords: Foreign Accent Syndrome, accent perception

1. INTRODUCTION

Foreign Accent Syndrome (FAS) is a motor speech disorder in which patients develop a speech accent which is notably different from their premorbid accent. A good summary of the issues associated with FAS is given in [3]. Although FAS is the only motor speech disorder which is defined purely in terms of the perceptual impression it invokes in listeners, the systematic investigation of the perception of foreign accent in FAS speakers itself has hardly received any attention. The only exception to this is [2]. For this reason, it was decided to carry out an in-depth perceptual study of FAS, the aim of which was to investigate the extent to which the foreign impression in FAS resembles that in speakers with a real foreign accent.

2. METHOD

This study consists of an accent attribution experiment in which native speakers of Dutch assessed the (foreign) accent of FAS-speakers, speakers with a real foreign accent and native speakers of Dutch.

2.1. Materials

The speech samples for the experiment were obtained in informal interviews with the subjects. They were asked to speak freely about general topics such as their professional background, hobbies, holidays etc. These interviews were recorded by means of professional recording equipment in a quiet setting. From these recordings, one representative speech sample was selected for each speaker. From a content point of view, care was taken that the speech samples did not contain any indications about the speakers' professional background, medical history or nationality. The length of all speech samples was exactly 50 words.

2.2. Speakers

The speech samples came from three groups of speakers. Group 1 consisted of 5 adult speakers who had previously been diagnosed with FAS. One speaker was male, the others female. Group 2 consisted of 5 non-native speakers of Dutch with a Real Foreign Accent (RFA). These speakers were matched for gender with the FAS speakers, but no attempt was made to match the accents to those that had been informally reported for the FAS patients. The accents were selected to reflect differences in familiarity with these accents to native speakers of Dutch. From this perspective, an informal familiarity ranking is: French > German > Southern British English > Canadian English > Korean. No explicit attempt was made to objectively quantify the strength of the foreign accent in these speakers.

Group 3 consisted of 5 native speaker controls who had no trace of a foreign accent (NSC). All these speakers were secondary school teachers of Dutch and can thus be regarded as having a standard pronunciation which represents a reference norm. These speakers were chosen to provide matches in terms of gender and regional accent.

2.3. Listener panel

The listener panel consisted of 123 listeners who were all native speakers of Dutch: 37 of them were advanced students in Speech and Language Pathology, 42 were naïve listeners with no formal experience in speech and language assessment, 44 were teachers of Dutch as a Foreign Language.

2.4. Speaker assessment

For each speaker, the listener panel was given a separate scoring sheet on which they had to freely attribute an accent to each speaker. In addition to accent identification, listeners had to rate the confidence in their own accent attributions on a 7-point scale between the extremes 'very uncertain' (1) and 'very certain' (7). Furthermore, they had to score each speaker on a 7-point scale of nativity between the extremes 'Definitely a non-native speaker of Dutch' (1) and 'Definitely a native speaker of Dutch' (7).

2.5. Procedure

The speech samples were played to the listeners in open field in a quiet lecture theatre with good sound amplification facilities. First, the listeners read the instructions to the test and provided information about their sociological background on a questionnaire. Then participants heard two practice speech samples to familarize themselves with the task. Subsequently, the speech sample of each speaker was played to the listeners three times. Following this, listeners were given 3 minutes to complete the questionnaire for the corresponding speech sample.

3. RESULTS

In order to visualise the range of accents that were attributed to the different speakers in the experiment, a contingency table was compiled which lists the attributed accents for the different groups of speakers. This is illustrated in figure 1. Pearson ChiSquare was significant at $p < 0.0001$, indicating that the distribution of attributed accents in the three speaker groups was significantly different. Figure 1 clearly shows that the speakers with a real foreign accent as well as the FAS speakers were attributed a wide range of accents. In order to visualize the strength of the association between the three groups of speakers in the test and the attributed accents, a correspondence analysis was carried out [1]. Correspondence analysis analyzes 'the association between two or

more categorical variables by representing the categories of the variables as points in a low-dimensional space. Categories with similar distributions [are] represented as points that are close in the space, and categories that have very dissimilar distributions [are] positioned far apart' [1] p.2.

Figure 1: Contingency table listing the attributed accents for the different groups of speakers in the listening experiment (Legend: RFA = Real Foreign Accent; FAS = Foreign Accent Syndrome; NSC = Native Speaker Controls).
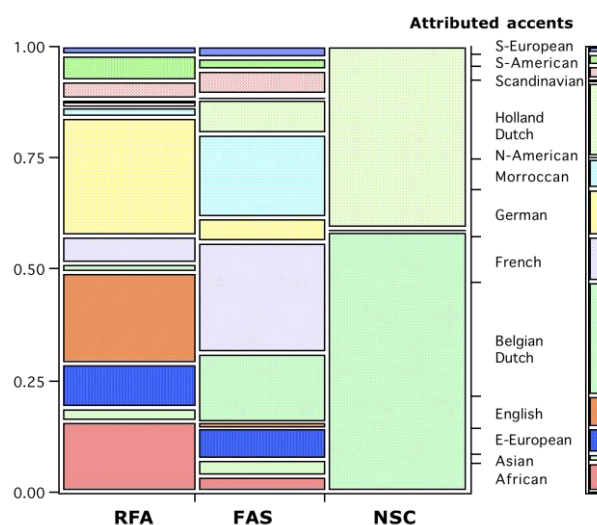
In the present analysis the first categorical variable is constituted by the different speaker groups, while the second categorical variable represents the different accents attributed by the judges in the listener panel. The results of this analysis are graphically represented in figure 2. In figure 2, the horizontal axis (c2) separates the individual speakers, i.e. the further they are apart on the plot, the more dissimilar they are in terms of accent attribution. The vertical axis (c1) represents the different attributed accents. As a result of this, the distances between the different speakers (crosses) and the accents (squares) represent the strength of association between the speakers and the attributed accents. The results of the correspondence analysis indicate that the speaker groups in the experiment cluster with different attributed accents. On the left hand side of figure 2, the analysis identifies two groups of native speaker controls (dashed circles). The left-most circle consists of speakers NSC2, NSC5 and NSC8, representing the native speaker controls with a Belgian Dutch accent. The lowest cluster is represented by speakers NSC3 and NSC9, i.e. the

native speaker controls with a Holland Dutch accent.

Figure 2: Correspondence analysis between the different speaker groups [crosses] (Legend: NSC = Native Speaker Controls, FAS = Foreign Accent Syndrome, RFA = Real Foreign Accent) and the attributed accents [squares].
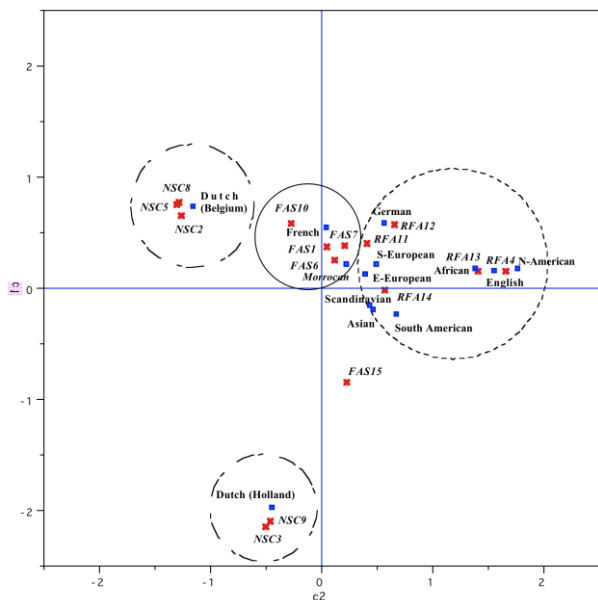

On the extreme right-hand side of figure 2, the group of speakers with real foreign accents is represented by the dotted circle. The correspondence analysis indicates that speakers RFA11 and RFA12 are most strongly associated with a German accent, speaker RFA13 with an African accent, speaker RFA14 with an Eastern European accent and speaker RFA4 with a somewhat ambiguous English accent that is neither British nor North American.

The last group of speakers in the correspondence analysis consists of the speakers with Foreign Accent Syndrome: these are indicated in figure 2 by the solid circle. This group is situated mid-way between the RFA-group and the native speaker controls. Speakers FAS1, FAS7 and FAS10 are strongly correlated with a French accent and speaker FAS6 is most strongly associated with a Moroccan accent. It can be noted that FAS15 does not have strong associations with any particular accent, but the speaker also occupies an intermediate position on the graph between the real foreign accent group and the Holland Dutch control speakers.

In addition, the nativity assessment was analysed for the three groups of speakers. This analysis was also done by means of correspondence analysis. In this case the different speaker groups constitute the first categorical variable, while the second one is made up of the nativity scores on the 7-point scale. The results of this analysis is given in figure 3:

Figure 3: Correspondence analysis of the nativity assessment for the three groups of speakers on a 7-point scale between the extremes 'Definitely a non-native speaker of Dutch' and 7 'Definitely of native speaker of Dutch. (Legend: NSC = native speaker controls, RFA = real foreign accents, FAS = Foreign Accent Syndrome).
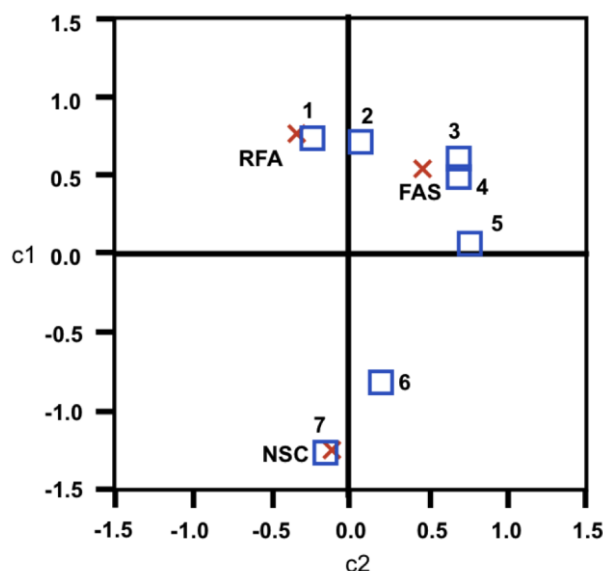
In figure 3 the crosses represent the different speaker groups, while the squares represent the different nativity ratings. From this graph it is clear that the native speaker control group (NSC) is (unsurprisingly) most strongly associated with the highest scores of nativity (i.e. score 7: 'definitely a native speaker'), while the speakers with a real foreign accent are most strongly associated with the lowest scores of nativity (i.e. score 1: 'definitely NOT a native speaker'). The FAS speakers most strongly associate with scores 3 and 4 on the 7-point scale which indicates that this speaker group was assessed neutrally with respect to nativity, though with a slight inclination towards non-nativeness.

4. DISCUSSION

The findings from this accent attribution experiment indicate that listeners have no doubt about the native status of the speakers in the native speaker control group. In the assessment of nativity, these speakers were most strongly regarded as 'Definitely a native speaker of Dutch',

they were nearly unanimously attributed a Dutch accent (99 %) and their regional accents were identified with great accuracy (99 % correct).

Furthermore, there is hardly any doubt about the foreign status of the speakers with a real foreign accent. These speakers were most strongly associated with the category 'Definitely NOT a native speaker of Dutch' in the nativity assessment and an overwhelming 97.2 % of the listeners attributed a foreign accent to these speakers, i.e. an accent which is not Holland or Belgian Dutch. So listeners have a very good intuition for real foreignness and are very accurate in their assessment of nativity. Even the foreign accents with which they are unlikely to be familiar with are interpreted as non-native.

Finally, it appears that the speakers with Foreign Accent Syndrome occupy a position intermediate between the previous groups at all levels of analysis. In the correspondence analysis the FAS speakers were positioned between the speakers with a real foreign accent and the native speaker controls. Furthermore, the assessment of nativity revealed that FAS speakers were assessed approximately neutrally.

From these observations, it can be concluded that the listeners have been very successful in identifying the native speakers and almost equally successful in identifying the speakers with a real foreign accent as non-native (although the accuracy of accent identification may not have been high). FAS speakers, however, were not considered as native as the control native speakers and clearly not as foreign as the speakers with a real foreign accent: in other words they occupy an intermediate position.

In terms of the types of accent attributed, the correspondence analysis revealed that FAS speakers are most strongly associated with French and Moroccan, while the speakers with a real foreign accent are mainly associated with – from a Belgian perspective – more exotic accents. In Belgium, French and Moroccan can be assumed to be the most familiar accents: 40% of the Belgian population is French-speaking and this accent is heard regularly on the radio and television news and current affairs programs. A Moroccan accent can also be assumed to be familiar to most of the listener panel since Belgium has a very substantial Moroccan immigrant population and this accent is heard frequently in the urban centres.

The fact that FAS speech in this experiment is more strongly associated with the more familiar accents is quite different from the results in [2] who did find an influence of accent familiarity, but only in the speakers with a real foreign accent, not in the FAS speakers. The fact that FAS is more strongly associated with the more familiar accents is consistent with the linguistic relative view of FAS which holds that listeners identify the accents in FAS with the ones that they have had previous exposure to.

5. CONCLUSIONS

The results of this accent attribution experiment indicate that FAS speakers are perceptually located intermediate between the native speaker controls and the speakers with a real foreign accent. This applies to all levels of analysis which means that FAS speakers are not perceived as foreign as speakers with a real foreign accent, while they are not perceived as equivalent to unimpaired native speakers. This clearly indicates that at some level the impression of foreignness in FAS is fundamentally different from the impression of foreignness in real foreign accents.

6. REFERENCES

[1] Clausen, S. 1998. Applied correspondence analysis: An introduction. *Quantitative Applications in the Social Sciences* 121. London: Sage.

[2] di Dio, C., Schulz, J., Gurd, J. 2006. Foreign accent syndrome: In the ear of the beholder? *Aphasiology* 20, 951-962.

[3] Verhoeven, J., Mariën, P. 2010. Neurogenic foreign accent syndrome: Articulatory setting, segments and prosody in a Dutch speaker. *Journal of Neurolinguistics* 23, 599-614.