

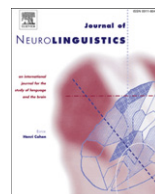


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Neurogenic foreign accent syndrome: Articulatory setting, segments and prosody in a Dutch speaker

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ABSTRACT

Foreign accent syndrome (FAS) can be defined as a motor speech disorder in which patients develop a speech accent which is notably different from their premorbid habitual accent. This paper aims to provide an explicit description of the neuro-linguistic and phonetic characteristics of a female speaker of Belgian Dutch who suffered from neurogenic FAS in which she developed a French/German foreign accent after a left hemisphere stroke. A detailed phonetic analysis of the speaker's pronunciation errors revealed problems at both the segmental and suprasegmental level. At the segmental level a wide variety of pronunciation errors were observed which are consistent with a tense articulatory setting: creaky voice, strengthening of fricatives into stops and more carefully articulated consonants and vowels. The data suggest that the perception of the French accent may have resulted from a combination of speech pathology features and unaffected regional pronunciation characteristics of the patient's Standard Dutch.

In contrast to the traditional view in the literature that FAS represents a primary dysprosodic disturbance, a detailed analysis of the speaker's intonation contours by means of the stylization method revealed the entirely correct implementation of the most common pitch contours of Standard Dutch. This unique finding shows that FAS does not by definition follow from disruption of prosodic processing. However, the frequency of occurrence of the different types of pitch contours was clearly deviant since the patient very frequently used the Dutch continuation rise. It is

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hypothesized that this might represent a deliberate strategy of the speaker to stay in control of the speaking situation by keeping the speaking turn which she is at continuous risk of losing as the result of long and frequent pausing.

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1. Introduction

Foreign Accent Syndrome (FAS) can be defined as a motor speech disorder in which patients develop a speech accent which is notably different from their premorbid habitual accent. This phenomenon was described for the first time in the context of speech and language pathology by the French neurologist Pierre Marie (1907): he reported the case of a Parisian speaker who developed a different French regional accent (Alsatian) after recovering from anarthria following a left hemisphere stroke. Since this first description a number of well-documented cases have been reported. A thorough consideration of the literature suggests that it is possible to distinguish different types of FAS. In *Neurogenic FAS* the change of accent is related to damage to the central nervous system. A landmark case is the Norwegian Astrid L. who developed a German accent after incurring head trauma during the Second World War (Monrad-Krohn, 1947): she sustained extensive damage to the left fronto-temporo-parietal region. Monrad-Krohn (1947) identified the main pronunciation problem to be a fundamental alteration of the patient's speech prosody. As to its neuroanatomical substrate, neurogenic FAS typically follows from etiologically different – mostly vascular – lesions affecting the motor speech areas of the language dominant hemisphere, including the precentral and middle frontal gyrus, the anterior insular region, the inferior parietal region and the adjacent subcortical regions. The most recent research further indicates that the cerebellum may also be crucially implicated in the development of FAS particularly in Mariën et al. (2006), Mariën and Verhoeven (2007) and Cohen, Kurowski, Steven, Blumstein, and Pascual-Leone (2009). Besides an *acquired* type of neurogenic FAS, a *developmental* variant has recently been identified by Mariën, Verhoeven, Wackenier, Engelborghs, and De Deyn (2009) who described FAS in the context of developmental apraxia of speech and specific language impairment.

The second type of FAS is a purely *psychogenic* variant in which the foreign accent of the patient is grounded in underlying psychological issues. This is exemplified by Verhoeven, Mariën, Engelborghs, D'Haenen, and De Deyn (2005) who described a Dutch patient with an outspoken French foreign accent. In this speaker, in-depth neurological assessment did not reveal any damage to the central nervous system, but her psychological profile was entirely consistent with conversion disorder. Reliable reports of similar patients are Van Borsel, Janssens, and Santens (2005), Tsuruga, Kobayashi, Hirai, and Kato (2008) and Haley, Roth, Helm-Estabrooks, and Thiessen (2009).

The third type of FAS can be considered of a *mixed* nature: in these cases the cause of the foreign accent is originally *neurogenic*, but the psychological effect of the change of accent on the patient's own personality perception is such that the patient attempts to achieve a better match between the newly acquired accent and his/her own self by further developing the accent to create a more 'believable' personality (Laures-Gore, Contado Henson, Weismer, & Rambow, 2006).

In *neurogenic FAS* the accent change is commonly related to a combination of segmental and suprasegmental pronunciation characteristics which deviate from what can be expected on the basis of the speech community to which the speaker belongs. At the segmental level, the most common problems are articulation errors pertaining to the degree of articulatory constriction in consonants and vowels with overshoot being more common than undershoot. Errors relating to various aspects of articulation such as the diphthongisation of monophthongs or wrong secondary articulations (clear l > dark l) occur less frequently as well as errors pertaining to place of articulation with backing being equally frequent as fronting of the place of articulation.

At the suprasegmental level, neurogenic FAS has often been noted to have a fundamental change of speech rhythm which is described as slow (Ardila, Rosselli, & Ardila, 1988), different (Christoph et al., 2004), isosyllabic (Berthier, Ruiz, Massone, Starkstein, & Leiguarda, 1991), staccato (Berthier et al.,

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