Gestalt: an undeniable part of human voice perception

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The discriminating power of voice quality vs. voice quality in FSC

Voice quality is described by Abercrombie (1967:91) as "those characteristics which are present more or less all the time that a person is talking: It is a quasi-permanent quality running through all the sound that issues from his mouth." In a broad sense, voice quality is the total product of laryngeal phonation and supralaryngeal filtering, radiated from the mouth and nose and resonating through the soft tissue, bony structures and cavities in chest, neck and head. Given that humans can identify individuals by their voice alone, the discriminating power of whatever it is that we perceive as 'voice' must be quite good. The value of voice quality for FSR is generally recognised (Hollien 1990, Baldwin and French 1990).

From this viewpoint, it is remarkable that the description of voice quality generally receives little attention in expert reports on forensic speaker comparisons (FSC). In this paper, we will first present the role of voice quality in the reports collected by Cambier-Langeveld (2007). We compare this with the review by Nolan (2005) of approximately 30 cases in the British Isles. Nolan found that comments by forensic phoneticians on voice quality tend to be limited to observations like 'there were similarities in voice quality'. The expert reports contained only occasional evidence of componential analysis of voice quality.

The challenge and a solution

In our presentation, we will argue that a featural protocol for assessing voice quality, such as the Laver Vocal Profile Analysis scheme (Laver 1980), cannot capture the uniqueness of a voice, simply because the voice is typically processed by human listeners holistically, i.e. as Gestalt (Kreiman and Sidtis 2011).

We view Gestalt processing as an inherent part of auditory perception that cannot be 'switched off' at will; it is a real and important phenomenon in speaker recognition. We argue that a report based only on componential analysis does not really do justice to the perceptual mechanisms that are at work.

Central to this paper is the challenge to give Gestalt perception a place in FSC. To meet this challenge, we re-address the so-called 'blind grouping' method. This method has been presented to IAFPA earlier as a means to fight confirmation bias (Cambier-Langeveld and van der Torre 2004, Schreuder 2011). This method might also be an answer to the call for testing the expert's performance under conditions reflecting those of the case under investigation (Morrison, in press).

Blind grouping does not require verbal-analytic terminology, but requires the expert to compare anonymised fragments and arrange them into groups based on same-speaker and different-speaker judgements. It allows the forensic expert to use any strategy to reach a result, including pattern recognition and feature analysis. This method is proposed as a supplement to other methods. The presentation will include a demonstration.

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