Guess who's laughing:

A perceptual experiment on twin and non-twin siblings' identification

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Introduction

The study of laughter has not received special attention in Phonetics despite the fact that this type of non-verbal vocalization fulfills key functions in social interactions, such as creating or strengthening affiliative bonds among speakers (Mehu, 2012). From a linguistic perspective, most studies have been undertaken in the field of Discourse Analysis. A particular interest has been placed in the temporal distribution of laughter with respect to topic boundaries (Bonin, Campbell and Vogel, 2012). Within a phonetic approach, Esling's (2007) has analyzed the states of the larynx in laughter whereas Trouvain (2001; 2003) has focused on the acoustic characteristics of laughter.

Objectives

In this study we will test listeners' performance in a perceptual task consisting in the identification of their own laughter and that of their siblings/twins. To our knowledge, this is the first report on a perceptual experiment of this kind. A review of the literature shows that this type of vocalization, i.e. laughter, has not been studied in either twins or siblings, who are especially challenging in a forensic setting because of their similarity.

Laughter (together with other non-linguistic features like tongue-clicking, audible breathing and throat clearing) is actually considered in forensic casework by the majority of international experts (Gold and French, 2011). Yet, Yarmey (2004) seems to be the only study to have proved that the sounds of laughter help listeners decide whether a speech sample comes from a familiar or an unfamiliar speaker.

Materials and method

A total of 12 subjects have participated in this experiment: 2 monozygotic (MZ) twin pairs, 2 dizygotic (DZ) twin pairs and 2 brother pairs. The participants were all male Spanish native speakers (mean age: 32.5). The age gap between brothers was 7 years in one case and 11 years in the other. All of them were recorded holding a semi-structured spontaneous telephone conversation with their respective siblings.

Several months after the recordings, they carried out a forced-choice identification task in which they listened to 24 stimuli consisting of laughter instances (6 x pair x 2 repetitions) extracted from their own recordings. They were asked to identify whose was the laugh at each time: his own or his sibling's.

Results

MZ co-twins share 100% of their genetic information while DZ co-twins as well as full brothers share 50% of their genes. External factors like social environment are supposed to be shared within the pairs in all the three speaker types. However, on brothers with a large age gap of separation, as is the case in our brother sample, the similarity due to environmental causes is expected to be smaller. Since voice similarity may depend both on genes and environment, our hypothesis was that MZ pairs would perform worse at this identification task than DZ pairs, who in turn would perform worse than brother pairs. Our preliminary results show that the percentage of correct identifications obtained by MZ pairs is indeed smaller than the percentage obtained by brother pairs. Identification scores will be correlated with Likert-scale values of within-sibling affinity.

References

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