

## **Abstract**

### **Relating Sound to Language**

The objective of this thesis is to acquire as much information as possible about a representative set of everyday sounds so that we can draw far reaching conclusions about them. The thesis explores how everyday sounds are perceived by us and are represented in our minds. I want to determine if language is a reliable window on the mental representation of the sounds. In this thesis, I use language as the link between the higher level abstract knowledge about sounds with everyday sounds.

I approach the issue from two directions which are the two experiments described in the thesis:

1. From sound to language (providing auditory input and obtaining linguistic information) – I provided Dutch subjects with some everyday sounds and obtained from them the categorization of the sounds along with the linguistic description of the categories. Multidimensional scaling analysis of the categories, coupled with linguistic analysis of the description provided an insight into how people categorize everyday sounds.

2. From language to sound (providing linguistic information and obtaining auditory output) – I provided Dutch subjects with some onomatopoeic words and corresponding sounds and asked them to mark the most typical sound with respect to an onomatopoeic word. This was compared with the most typical sounds obtained through the cochleogram analysis of the sound structure of the sounds. The results thus obtained showed that the phonetic structure of onomatopoeic words is not arbitrary and onomatopoeic words indeed correlate with the corresponding sounds.

The thesis provided the conclusion that we perceive and categorize everyday sounds based on various parameters, which are not only acoustic or auditory in nature, but also semantic in nature. Another conclusion I draw is that the acoustic features of sound are encoded in the form of phonetic features in onomatopoeic words. Thus, I establish that there is an intricate relationship between sound and language, and we use semantic and phonetic features to represent everyday sounds in language.