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## Psychoacoustics of chalkboard squeaking

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### Abstract

At least since 1975 the "pleasantness" of a sound is discussed from many different angles (Ely 1975; Aures 1984; Halpern et al. 1986; Vaschillo 2003; Neumann & Waters 2006; Cox 2008), but often chalkboard squeaking or scratching a chalkboard with finger nails tops the list of unpleasant sounds. The aim of the presented study is to detect specific parts of the sounds that make chalkboard squeaking particularly unpleasant. With a combination of perception experiments and electro-physiological measurements, it was analyzed to what extent the knowledge about the sounds influenced the subjects' judgments and/or the physiological reactions. Basically the study is a replication of Halpern et al. (1986), whose methods were extended by several sophisticated sound analysis and re-synthesis techniques and the measurement of some electro-physiological parameters (heart rate and skin resistance) during listening. First results show that especially the modification of the tonal parts as well as applying a filter between 2000 and 4000 Hz led to a more pleasant sound perception. Almost all stimuli were rated more unpleasant if the subjects knew about the nature of the sounds.

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