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Classification of everyday sounds : influence of the degree of sound source identification

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Based on a review of everyday sound classification studies, we define three types of similarity that might underlie the formation of categories: acoustical similarity, related to the perception of the sound signal properties; causal similarity, related to the perception of the cause of the sound; semantic similarity, related to the meaning of the sounds. This study focuses on the influence of the degree of sound source identification on the type of similarity used during a free sorting task. Our hypothesis is that well-identified sounds will lead to categories based on causal or semantic similarities, while non-identified sounds will lead to categories based on acoustical similarity. First we measure the causal uncertainty of each sound of a set of kitchen sounds. We ask to participants to describe the cause of the sounds in order to measure the degree of identification for each sound. The results of a free sorting task on this sound corpus indicate that participants groups together sounds according to our assumptions. The classification of the well-identified sounds shows a clear distinction between classes of sound events (gas, liquid, solids, motor) confirming a taxonomy proposed in literature. [Work supported by the CLOSED project of the NEST program]