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Verbal imitations of sound events enable recognition of the imitated sound events

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We report a study investigating how verbal imitations of sound events might convey information enabling the recognition of the imitated sounds. We sampled twenty-eight sounds across a taxonomy of kitchen sounds, obtained from a previous experiment focused on the perceived properties of the causes of the sounds. First, we recorded speakers while imitating the sounds. They were specifically required not to use words. Then we selected the imitations of six speakers (three men, three women) imitating twelve sounds. Finally a group of twenty listeners performed a sorting task (they had to group together imitations thought to imitate the same events), and were asked to describe how they built each category. The categories of imitations, obtained from a hierarchical tree representation, fit very well with the categories of the original sound events. This suggests that speakers have succeeded in capturing the information sufficient to enable listeners to recognize the sound events. This is further confirmed by the analyses of the verbalizations. Phonetic analyses show that imitations grouped together share some phonetic similarities, yet the main similarities seem rather to be based on prosodic indexes (duration, intonation, rhythmic patterns). [This work is funded by the FP6 NEST Pathfinder European project CLOSED]