

Realizations of EVENTS in descriptions of everyday sounds

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Keywords: auditory experiences, soundscapes, conceptual structures, verb constructions

While earlier works in different disciplines have described auditory perceptions in detail, no earlier work has detailed how conceptual structures that relate to auditory experiences are realized in descriptions of everyday sounds. Sound correlates (e.g., pitch, loudness, or duration) are integral aspects of auditory experiences. They are, however, not the only elements that affect human perception and conceptualization of everyday sounds. When a sound is produced in the physical environment, a soundscape is created: an auditory environment made up of a range of features such as activities, states, interactions or contact between (in)animate entities. As previous research has shown, soundscapes are often realized as EVENTS, whose descriptions are often approached from different viewpoints and involve meanings of multiple content (Caballero & Paradis, 2020; Hartman & Paradis, submitted).

In this study, we asked 214 adult, native speakers of English to describe 20 pre-recorded, everyday sounds, in the form of acousmatic stimuli (i.e., no sound sources seen, just sounds heard). We prompted the participants to “describe the sound in as much detail as possible, as if you are describing it to someone that cannot hear it”, to elicit responses which we consider emulations of sound descriptions in natural language use. Our data include 3,875 typed descriptions for the 20 sounds, a total of 51,089 words. The aim is to describe and explain how the participant responses realize conceptualizations of EVENTS that the participants associated with the 20 acousmatic stimuli. The analysis focuses on the constructions headed by 8,244 verbs. There are three questions at the core of the study:

1. What types of EVENTS and verb constructions are involved in the descriptions?
2. What aspects of the soundscapes are described through the verb constructions in the data?
3. How do the uses of the verb constructions relate to the descriptions of the soundscapes?

We designed an encoding scheme which includes four subsequent steps, as shown in Table 1. Step 1 focuses on whether the verbs communicate PROCESSES/ACTIVITIES or STATES. Step 2 identifies each construction as one out of the eight constructions shown in column 2, the list of which is data driven and developed in the analysis. Step 3 identifies how the constructions relate to the descriptions of the soundscapes in terms of motivation and subsequently step 4 specifies which aspects of the soundscapes the constructions profile.

We found that, overall, the sounds are described through realizations of PROCESSES/ACTIVITIES (66% of all verb constructions used in the data set) more often than STATES (34%). The distinction is more evident when the soundscapes described involve different types of interactions between the human body and the external environment, such as someone sipping tea (84% PROCESSES/ACTIVITIES vs. 16% STATES, in relation to the total of the verb constructions used to describe this sound), doing the dishes (73% vs. 27%) or walking on gravel (62% vs. 38%), and less evident for mainly non-human sources, such as the sounds coming from traffic in the street (59% vs. 41%) or a forest (56% vs. 44%). PROCESSES/ACTIVITIES are realized mainly by [X ACT] (24%) and [X DO Y] (22%) constructions across the sounds, as in *someone cooking in the kitchen* and *someone making breakfast*, while [X HAPPEN] (16%) constructions, as in *water moving around*, appear relatively less frequently. Passives realized by [X UNDERGO] constructions, as in *cars being driven*, are not as frequent (5%) across the sounds. STATES are described mainly by [X BE (Y)] (15%) and [X BE LIKE Y] (10%) constructions, as in *it's a fire* or *there is a road nearby*, and *what sounds like an apple* or *what seems to be a hot drink*. [X EXPERIENCE Y] (8%) and [X HAVE Y] (1%) constructions, as in *you can hear the cutlery* and *the sound has a general low-pitched hum*, have the lowest frequencies among the construction types.

Across the descriptions the frequencies of the constructions that focus on the source(s) of the sounds vary between 89% and 64% of the constructions used to describe each sound. The frequencies differ distinctively compared to the frequencies of the constructions that focus on the listener's engagement (range from 30% to 8%) and sound correlates (9% to less than 1%) in each sound. Overall, the results fluctuate considerably when the descriptions of the individual stimuli are taken into consideration. The analysis of the data showed that the type of stimulus described has a strong effect on both the type of the constructions that are used to describe each of the sounds and how the constructions profile the three aspects of the soundscapes. The study reports on both similarities and differences across the results.

EVENTS	Non-substantiated constructions	Motivation	Aspects of the soundscapes	
PROCESS/ACTIVITY	[X DO Y]		source	
	[X ACT]			
	[X HAPPEN]		sound	
	[X UNDERGO]			
STATE	[X BE (Y)]		justification	listener's engagement
	[X BE LIKE Y]		reasoning	
	[X HAVE Y]	emotional reaction		
	[X EXPERIENCE Y]			

Table 1: Encoding scheme: conceptual structures of EVENTS through uses of verbs

References

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