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REGULATIONS ON USE

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Background

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THE LANGUAGE OF SOUND[3]

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Project	Categories and concepts across language and cognition
Task	Linguistic elicitation for sound vocabulary using sound files
Goal of task	To investigate how languages encode sound – specifically (1) whether there is dedicated vocabulary for encoding simple sound contrasts and (2) how much consistency there is within a community in descriptions
Prerequisite	You must have completed "Language of perception" (pp. 10-21). To conduct this task you need the audio "sound" files

Background

Sound is a complex, multidimensional domain, which physicists characterise by the properties of waves, that is, by wavelength, amplitude, frequency, period, and speed. Human perception, however, maps these dimensions into yet another multidimensional space, since waves have to be transformed into nerve impulses to reach the auditory cortex. The differences between acoustic properties and auditory properties can be dramatic – in the latter "amplitude is compressed, frequency is warped and smeared, and adjacent sounds may be smeared together" (Johnson 1997:49). Perceived loudness varies in a non-linear way with amplitude: small changes in amplitude at the low amplitude level (soft sounds) count as big jumps in perceived loudness, while at the high amplitude level (loud sounds) relatively large changes in amplitude seem to make little difference in perceived loudness. (Perceived loudness is measured in "sones", for which decibels are a rough proxy.) Similarly, perceived loudness interacts with frequency: very high pitch tones (10 kHz or more) perceptually matching in amplitude a mid tone (say 1 kHz) may in fact be double the amplitude, and similarly for very low tones – this is because our hearing sensitivity lies in the middle frequency area, between 2-5 kHz. (See Johnson 1997 for details.)

In this section we are interested in the natural, non-expert, metalanguage for sounds in the language under study. Think about English for a moment, and you will see that the metalanguage is quite rich. For example, we talk about *sounds*, and denote unpleasant sounds as *noise* (in fact we have quite a range of terms for *jarring, harsh, dissonant* noises). We also talk about *loud* vs. *soft* sounds, tell children to *speak less loudly* or ask them to *speak up*. We distinguish perceived pitch in terms of *high* tones and *low* tones (as in *She has a peculiarly low voice*, or *He sings the high notes beautifully*). We talk about rythmic (temporal) properties in terms of *fast* or *slow* (*He beat a fast tattoo on the drums*, *She speaks so slowly*).

More specific types of sound, associated with specific type of events, are coded as *crashes, clangs, bangs, tinkles, rings, thuds, rumbles, boom, thump, knock, slam, din, squeak, creak, click, swish, hiss, rattle,* etc. Note that some of these collocate only with particular sources, or at least specific sources yield specific sounds: thus bells produce *rings, clangs, peals*, *chimes*, voices *whispers, shouts, yells, sighs, titters, laughs, whoops, murmurs, whistles, snores;* doors produce *creaks*, *slams, knocks*, fireworks *bangs, booms, crashes, whistles, crackles, pops*. Animal may produce characteristic *barks* (dogs, seals),

[3] The stimuli for this task were specially produced by Holger Mitterer.

neighs (horses), *brays* (donkeys), *meouws* (cats), *whines* (dogs, children), *hoots* (owls), *quacks* (ducks), *hisses* (snakes). In English these are mostly deverbal nouns, and the verbs are the richer set as in *buzz* (of bees, wasps), *clatter* (of hard things), which resist pluralization. In most languages one can expect a rich verbal lexicon here – Yélî Dnye for example has at least 7 different verbs for characteristic sounds of different bird species.

As far as we know, there is little systematic cross-linguistic comparison of the vocabulary for auditory experience – certainly nothing like that matching colour terms. Although auditory experience is second only to visual experience (and amount of dedicated cortex) in human cognition, there are reasons to think the metalanguage may generally tend to be poorer – for one thing, sounds are ephemeral and evanescent, making comparison harder. Cultures with rich musical traditions seem more likely to have developed richer metalanguage, since that will aid musical instruction, the construction of consistent musical instruments, and the development of aesthetic discussions and appreciations.

Research questions

What are the general resources for describing simple sounds? Is there a dedicated vocabulary, and if so what types of distinctions are encoded? How much consistency is there within a speech community for describing simple sound experiences?

Task

The task is designed to elicit vocabulary for simple sounds. The primary goal is to establish how people describe sound and what resources the language provides generally for encoding this domain.

Consultants

Aim to test 12 participants. Keep a note of participants age (approximate age is fine), gender, and full linguistic background.

Stimuli

The sound stimuli consist of 20 audio files. You can find these audio files in the Categories folder, under LanguageofSound. They are numbered and should be played in consecutive order.

The sound stimuli come in pairs. They vary in perceived loudness, pitch and tempo. The stimuli have been corrected for *perceived* loudness – that is, the rising tones have been corrected to have the same *sone* values, and the loudness scale has been correct to make pitch seem constant.

We are interested in how people describe these parameters in their language. Thus the target terms in English would be *high* and *low* for tone contrasts, *loud* and *soft* for loudness contrasts, and *fast* and *slow* for tempo contrasts.

Procedure

Remember to video~audio-tape your session.

Consultants should listen to the stimuli over good quality headphones.

First orient your consultant about the nature of the task. Explain that you will be playing some sounds and you want them to describe them. This task differs from the others on

language of perception in that we are looking for relational terms. You will play the sound files in pairs first, and then play them again individually to elicit separate descriptions for each sound file.

Begin with pair 1, i.e. files 1a and 1b. Play the sounds in slow sequence, one after the other, with c. 1-2 seconds between stimuli. Then play file 1a again and ask your consultant *How does this sound?* Play 1b and ask again *How does this sound?* We want to elicit a description for each sound file but the files have to be played in pairs in order to orient the consultant to the relevant dimension of variation.

Do the same procedure again with pair 2a and 2b. Play the sequence, go back to the beginning, play the first of the two sounds again, and ask *How does this sound?* Play the second of the pair and repeat the question. Continue till you have played all 10 pairs of files. You should have separate descriptions for each one of the 20 audio files.

Analysis
Each consultant's responses will be coded for word/phrase/construction used to describe sound. This will then be analysed for (1) consistency across consultants and (2) category of response.

Outcome
Data will contribute to a description of the grammar of perception in the field language, intended for a collected volume. The pooled cross-linguistic data will also contribute to an overview publication on the encoding of the senses across languages.

Optional post-task elicitation
Follow up these results to explore when else these terms may be employed. Ask for example about birds and their characteristic noises. What happens when a boy grows up and his voice changes? What is the difference between men's voices and women's?

Now also explore the richer vocabulary there is likely to be for characteristic sounds from given sources, as in the notes above (Do drums roll, bong, or what? Do crocodiles bark, dingoes howl, llamas bray, or what? Do gongs ring, sound, or what? Does the wind howl, the sea roar, or what?). See also the notes on soundscapes above in the section "Language of perception" (pp. 10-21).

References
Johnson, K. (1997). *Acoustic and Auditory Phonetics*. Cambridge, MA: Blackwell Publishers.