Letter
Cultural Factors Shape Olfactory Language
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Compared to the other senses, smell is linguistically challenged. Colors and shapes; tastes and textures, each have their armory. A tomato is ‘red’ and ‘round’. A lemon is ‘smooth’ to touch and has a ‘sour’ taste. Each sensory domain has its own lexical field: a set of words codifying the distinctions in that modality. Smell stands apart. When asked to name familiar, everyday scents English speakers are stumped.

Olfaction does not have dedicated lexical apparatus (or so it is claimed; see references in [1]). Instead, when English speakers name smells they typically refer to sources (e.g., ‘it smells like banana’). Worse still, when they use source-descriptions they usually incorrectly identify the odor [2]. Olofsson and Gottfried [3] argue that olfactory naming is difficult because of the way the brain is organized. But, does the neural anatomical organization they describe cause olfactory naming problems or does it merely reflect the learning history of a particular cultural group? To answer this question a cross-cultural approach is essential.

In a recent study, my colleagues and I compared how often speakers of 13 diverse languages around the globe talked about sight, hearing, touch, taste, and smell in everyday conversation [4]. In all communities (including English) vision was the most talked about perceptual modality, followed by hearing – except for Semai (a language from the Malay Peninsula) – where smell leapt to second-place. Maniq [1] and Jahai [2], languages related to Semai, exhibit a similar preoccupation with smell. Unlike English, these languages have a dedicated lexical field for smell. Just as you would describe a tomato as red, a Jahai speaker would describe the smell of becarat as ltpit.

There are 12–15 words used by the Jahai and Maniq to describe different categories of smells. A becarat is ltpit, but so are flowers, durian, soap, etc. (in the same way as both a fire-engine and blood are red like a tomato). Terms such as ltpit do not refer to general qualities (like ‘edibility’ or ‘stingingness’, contra Olofsson and Gottfried). Their meaning is not general over tastes, textures, pain, or any other state; their business is smell. To develop and use such a lexicon, speakers must pay attention to odors all the time. A smell experienced now might not be talked about until much later, so when encountered it must be appropriately linguistically tagged and coded in memory. The Maniq and Jahai are not alone; a dedicated lexical field for smell has been attested in numerous languages in Asia-Pacific, the Americas, and Africa [5]. The problem with odor naming is not universal.

Olofsson and Gottfried ask whether olfactory-naming could ever be as good as visual object naming. However, this is not the best comparison. Odors are properties, and therefore should be compared to another property (e.g., color). This analogy has much potential. Like smell, the basic lexicon for color naming varies cross-linguistically [6]. Some languages have only three basic color words (e.g., Umpila, Australia [7], while others have as many as 15. Similarly, English speakers appear to have only two or three dedicated smell words in their active vocabulary (‘stinky’, ‘fragrant’, ‘musty’), in contrast to the 15 smell terms in Maniq. When a language has a small set of color words, speakers rely on ad-hoc source-descriptions (e.g., ‘it is banana-colored’) [7]; just as English speakers turn to source-descriptions when their smell lexicon fails them. Color lexicons evolve in a predictable manner [8]; it is an open question at present whether the same holds for smell lexicons.

Language is, of course, coupled to perceptual and cognitive systems and to their underlying neural foundations. But, there is considerable plasticity, reflecting individual learning histories, which in turn reflect linguistic and cultural experience. English speakers are literate (unlike the Maniq or Jahai). Literacy – a recent technological invention in human history – changes the neural organization for spoken language [9]. English is an outlier from a cross-linguistic perspective [10]. Typologically different languages have distinct neural signatures: Chinese listeners show more bilateral hemispheric activation for speech than English speakers, whereas processing of Finnish recruits different neural circuits again [11]. To describe smells English speakers usually use nouns, whereas Maniq and Jahai speakers use verbs. Referring to entities recruits different neural circuits than predicing something about them [12], another potential point of difference.

Ultimately, any explanation of olfactory language will not be satisfactory if it only accounts for the behavior of one linguistic community. Even if we found naming odors recruited disparate neural circuitry in Maniq, Jahai, and English, this would not tell us why this was the case. Mapping the neural processes for odor-naming cannot explain why speakers of different languages talk about and think about odors in such different ways. Instead we need an account that reflects the variability of odor lexicons and odor-naming abilities in the human population as a whole. And that requires we take culture seriously.

2. Majid, A. and Burenhult, N. (2014) Odors are expressible in language, as long as you speak the right language. Cognition 130, 266–270

References