



Brief article

Odors are expressible in language, as long as you speak the right language

Asifa Majid^{a,c,*}, Niclas Burenhult^{b,c}^a Centre for Language Studies and Donders Institute for Brain, Cognition and Behavior, Radboud University, Nijmegen, The Netherlands^b Lund University, Lund, Sweden^c Max Planck Institute for Psycholinguistics, Nijmegen, The Netherlands

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ABSTRACT

From Plato to Pinker there has been the common belief that the experience of a smell is impossible to put into words. Decades of studies have confirmed this observation. But the studies to date have focused on participants from urbanized Western societies. Cross-cultural research suggests that there may be other cultures where odors play a larger role. The Jahai of the Malay Peninsula are one such group. We tested whether Jahai speakers could name smells as easily as colors in comparison to a matched English group. Using a free naming task we show on three different measures that Jahai speakers find it as easy to name odors as colors, whereas English speakers struggle with odor naming. Our findings show that the long-held assumption that people are bad at naming smells is not universally true. Odors are expressible in language, as long as you speak the right language.

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1. Introduction

It is widely held that people find it difficult, if not impossible, to name odors. As the German physiologist and renowned olfactory specialist Hans Henning says: “olfactory abstraction is impossible. We can easily abstract the common shared color – i.e., white – of jasmine, lily-of-the-valley, camphor and milk, but no man can similarly abstract a common odor by attending to what they have in common and setting aside their differences” (Henning, 1916, p. 66). Similar sentiments have been echoed over the millennia by other renowned scholars. In a recent article, Yeshurun and Sobel (2010) on reviewing 30 years of experimental research conclude “humans are astonishingly bad at odor identification and naming” (p. 226), while Rivlin and Gravelle (1984) argue that smell

representations are simply inaccessible to the language centers of the brain (cf. Lorig, 1999).

As Henning observed, there does not seem to be a vocabulary for odors in the same league as we find for color. Words like *red*, *blue* or *green* denote a particular range of hues, but nothing comparable exists for scents. The closest matches *stinky* or *fragrant* appear to denote the evaluative experience of the participant rather than the quality of the smell. More importantly, people typically employ a different kind of strategy when they describe smells – they say an object smells *like a banana* or *like a rose*. That is, they identify the source that typically has that smell (Wilson & Stevenson, 2006). Even experts in the flavor and fragrance industry primarily use source-based descriptors to refer to odors (e.g., Drake & Civille, 2002; Zarzo, 2008), supplemented with metaphorical expressions (e.g., Caballero, 2007; Lehrer, 1983). Descriptions are often ad-hoc, and are poorly understood by non-experts (e.g., Lawless, 1984; Quandt, 2007; Solomon, 1990).

Presented with familiar everyday objects, such as coffee, peanut butter or chocolate, ordinary people correctly name

* Corresponding author. Address: Centre for Language Studies, Radboud University, P.O. Box 9103, 6500 HD Nijmegen, The Netherlands. Tel.: +31 (0)24 361 1251.

E-mail address: asifa.majid@let.ru.nl (A. Majid).

only around 50% of odors (Cain, 1979; Cain, de Wijk, Lulejian, Schiet, & See, 1998; Distel & Hudson, 2001; Lawless & Engen, 1977). If people displayed similar performance with a visual object, they would be diagnosed as aphasic and sent for medical help. So, both in the linguistic system itself and in the everyday behavior of people we find evidence that smells are not particularly codable, or expressible, in language.

However, if we examine the data carefully we find that the majority of evidence for the poor codability of odors comes from a rather restricted source, that is, native speakers of English (and their brethren speaking related languages). Why might this be problematic? Cross-cultural investigations have demonstrated that people from Western Educated Industrialized Rich Democratic communities are outliers in their behavior – from how they perceive visual phenomena to how they reason about moral dilemmas (Henrich, Heine, & Norenzayan, 2010). In addition, there is growing evidence that the semantic categories found in English are far from representative of the world's languages (e.g., Majid & Levinson, 2010, 2011). There are around 6000–7000 languages spoken today, each one a solution to the communicative situation faced by speakers in different socio-cultural and ecological niches. This raises the question of whether the apparent ineffability, or inability to put words to smells, is really telling us something about all of humanity, or something specific about speakers of English (cf. Levinson & Majid, *in press*).

In fact, there are plenty of indications in the literature that odors figure prominently in other cultures (Classen, Howes, & Synnott, 1994; Hombert, 1992; van Beek, 1992). Hidden in the literature are reports of elaborate odor lexicons. One of the earliest is a brief 2-page report by Aschmann (1946) on the smell terms of Totonac (Totonacan; Mexico). The Aslian (Austroasiatic) languages of the Malay Peninsula, Southeast Asia, also boast such odor lexicons (Burenhult & Majid, 2011; Tufvesson, 2011; Wnuk & Majid, 2012). Jahai is one of these languages. The Jahai, a group of nomadic hunter-gatherers in the mountain rainforests along the border between Peninsular Malaysia and Thailand, have a lexicon of over a dozen verbs of olfaction that are used to describe a wide array of odors. These are “basic” smell words (cf. Berlin & Kay, 1969): they are monolexemic and psychologically salient; they are not source-descriptors, nor are they restricted to a narrow class of objects (Burenhult & Majid, 2011). For example, the term *ltpit* is used to describe the smell of various flowers and ripe fruit, including intense smell of durian, perfume, soap, *Aquillaria* wood, and bearcat (*Arctictis binturong*, which, according to Wikipedia, smells like popcorn). *Cjes*, another smell word, is used for the smell of petrol, smoke, bat droppings and bat caves, some species of millipede, root of wild ginger, leaf of gingerwort, wood of wild mango, among other odor sources. So, these terms refer to different odor qualities.

On the surface languages like Jahai challenge Henning's claim that olfactory abstraction is impossible. To date, however, there has been no systematic experimental test of whether odors are easy to describe by speakers with a specialized olfactory lexicon. Although such languages provide speakers with a rich set of olfactory words,

perhaps speakers still struggle to use them with ease. If so, then Jahai speakers would find it as difficult to name smells as English speakers when tested under controlled conditions.

To test this we presented Jahai speakers with the Brief Smell Identification Test (B-SIT)TM (Doty, Shaman, & Dann, 1984), and compared their naming behavior to age- and gender-matched English speakers. The B-SIT is designed to be run as a forced multiple-choice; however, that is obviously not appropriate to our goals as we are interested in eliciting Jahai smell words. So, the B-SIT was used in a free-naming paradigm instead. We also elicited free-naming to color stimuli, using Munsell color chips, to provide a further point of comparison. Speakers were asked in their native language to name stimuli one at a time and we measured the “codability” of color and smell. Drawing on Brown and Lenneberg (1954), we operationalized codability in three ways: (1) speaker agreement in descriptions, (2) length of utterance, and (3) type of response offered (abstract, source-based, or evaluative). If cultures differ in the ease with which odors are expressed in language, then we would expect to find an interaction between language and sensory domain. If, on the other hand, odors are universally ineffable we would not expect an interaction, only a main effect of sensory domain.

2. Methods

2.1. Participants

Participants were 10 native speakers of Jahai, all men, with a mean age of 37 years (range 20–60 years). They were tested in the resettlement village of Air Banun, Hulu Perak district, Peninsular Malaysia. Three had basic schooling (1–3 years primary school in Malay; all Jahai speak Malay as a second language); only one could be considered fully literate. Although mostly resident in a resettlement village with frequent exposure to modernity, all participants still pursue traditional foraging as their primary livelihood.

Ten speakers of American English were matched to the Jahai; all were men, mean age 42 years (range 28–56). There was no difference between age groups $t(18) = 1.02$, $p = .32$. English participants were tested in Austin, Texas. Most had some knowledge of Spanish, but only one participant was proficient in a second language, and that same participant had a university education. All other participants had at most a high school education. All Jahai participants were smokers but only four English speakers smoked. Everyone was screened for color blindness using Ishihara plates.

2.2. Stimuli

For the odor task, The Brief Smell Identification TestTM (Doty et al., 1984) was used. Odorants are microencapsulated and the odor is released by scratching a card with a pencil. The 12 odorants in the test were administered to participants in a fixed order: cinnamon, turpentine, lemon, smoke, chocolate, rose, paint thinner, banana, pineapple, gasoline, soap, and onion.

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