

Scents and Sensibility: Olfaction, Sense-Making, and Meaning Attribution

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Abstract

How are smells invested with meaning and how do those meanings structure interactions and group relations? I use cultural theories of meaning-making to explore these questions, situating my inquiry in the world of commercially marketed perfumes. Using blind smell tests in focus groups, I examine how individuals make sense of certain fragrances absent direction from manufacturers or marketing materials. I find that most participants can correctly decode perfume manufacturers' intended message, target users, and usage sites. I unpack the role of culture in these initial classifications of smells, and later, in how participants apply those evaluations to reify social boundaries and reproduce social relations—especially with reference to race and class. I also identify two cognitive mechanisms—embodied simulation and iterative reprocessing—illustrating how these mechanisms facilitate a dynamic interaction between practical and discursive modes of consciousness in deciphering smells. Finally, I elaborate the role of sociocultural location in olfactory meaning-making. People in all locations may be familiar with public olfactory codes, but social position influences how participants think about, interpret, and apply those codes in meaning-making.

Keywords

smell, culture, cognition, embodiment, racialization, class attributions

“I smell this and I think important . . . which also means wealth. I feel impressed.”

“This is so ‘in your face.’ . . . Something about it makes me think Hispanic. It’s noisy.”

— two reactions from participants in blind smell tests of commercially marketed perfumes

You sample a perfume, not knowing anything about its formula, its manufacturer, or its target market. How do you make sense of the smell? The quotes above, taken from focus group participants following blind smell tests of commercially marketed perfumes, suggest that we make sense of and attribute meanings to smells in ways that both emerge from and

recreate the organization of social life. But exactly how does that process unfold?

The story of smell and olfactory meaning-making is multifaceted. Cognitive scientists study its brain-based elements, noting both the neural mechanisms involved in apprehending and saving smells and the neural paths that smells can trigger (see, e.g., Doty 2001; Rouby et al. 2002; Turin 2006). Within cognitive science, embodied cognition theorists take an

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even broader view, arguing that olfactory processing is beholden to our bodies and inseparable from the environmental contexts in which our bodies collect information. Thus, deciphering smells involves a fully entwined system including neural operations, corporeal experience, and the cultured environments in which bodies are embedded (see, e.g., Clark 1997; Shapiro 2010; Spackman and Yanchar 2013).

This partnership of brain, body, and cultured environment makes the study of smell a compelling site for social science inquiry, and several of the social sciences have already entered the discussion. Psychologists, for example, explore the biological roots of olfaction and how they influence the resulting social functions of smell (e.g., Doty 2001; Herz 2007; Van Toller and Dodd 2012; Wilson and Stevenson 2006). Anthropologists study how smells are used to mark ingroups and outgroups, define spaces, project identities, enhance ritualistic messages, and motivate action (see, e.g., Ackerman 1990; Classen 1992, 1993; Classen, Howes, and Synnott 1994; Drobnick 2006; Howes 1987; Howes and Classen 2013).

Sociologists, in comparison to those in other disciplines, have been relatively quiet on the subject of smell—this despite Simmel's ([1907] 1997) century-old call for a sociology of the senses. This silence is somewhat puzzling, for emerging work on other sensory experiences shows that the senses can mediate social interactions, providing a potent site from which to explore issues central to contemporary sociological debates. These include the relative contributions of body and habit, cultural discourse, and public cultural codes to people's understandings and reproduction of the social world (see, e.g., Pagis 2009; Schwarz 2015; Winchester 2016).

Happily, sociologists' disinterest in smell shows some signs of waning. Vannini, Waskul, and Gottschalk (2013), along with a small group of sociologists, explore the "somatic work" involved in olfactory sense-making. Somatic work refers to the "reflexive experiences and activities by which individuals interpret, create, extinguish, maintain,

interrupt and/or communicate somatic sensations that are congruent with personal, interpersonal and/or cultural notions of moral, aesthetic and/or logical desirability" (Vannini et al. 2013:19). These scholars primarily itemize the rules of somatic work and explore how such work invests smells with social meaning (see, e.g., Largey and Watson 2006; Low 2005, 2013; Rhys-Taylor 2013; Synnott 1991; Waskul and Vannini 2008; Waskul, Vannini, and Wilson 2009). In this article, I broaden that inquiry in a significant way. I draw on cultural theories of meaning-making to explore the understudied domain of olfaction, addressing how both public culture (codes, contexts, and institutions [see, e.g., Swidler 2001]) and personal culture (in both its nondeclarative and declarative forms [see, e.g., Lizardo 2017; Patterson 2014]) are involved in deciphering smells.

I begin by identifying the public codes that surround smells and documenting people's familiarity with those codes. I then explore how people use public codes in conjunction with nondeclarative and declarative culture to make sense of and attribute meaning to these smells. Next, I explore the cognitive mechanisms that guide the use of culture (personal culture in particular) in olfactory meaning-making. In so doing, I address current debates on how different cultural elements operate in sense-making and meaning attribution. Finally, I show that the cultural-cognitive processes people use to construct olfactory meaning are influenced by their sociocultural location. I compare how people in different locations use culture to interpret smell, and how they use smell to define, distinguish, and rank others in various races and classes. By attending to these varied elements, I offer an empirically detailed picture of how brain, body, and cultured environment combine to influence our understanding of smells and their role in organizing the social world.

I situate my inquiry in the world of commercially marketed perfumes. I selected perfumes that manufacturers aim at very different buyers, and I recorded the manufacturer's statement of each perfume's "notes" (i.e., the

scents manufacturers try to convey via certain ingredient combinations),¹ the manufacturer's intended message to buyers, and the manufacturer's intended target users and appropriate sites of use. I then performed blind smell tests in focus groups to examine how individuals make sense of and attribute meaning to these perfumes absent any direction from manufacturers, salespeople, or marketing materials. Participants shared with me what they believed to be the perfume's notes, the message the scent was designed to convey, the women likely targeted by the perfume manufacturers (including age, occupation, race, and social class), and the setting (e.g., daytime/workplace, evening/romance, general leisure, or all purpose) for which the perfume was designed. Participants also shared with me how and why they came to some of these conclusions.

My analysis shows three things. First, most participants, although blind to the perfumes sampled, correctly identified each perfume's notes and correctly decoded the manufacturers' intended message, target users, and sites of use. Yet respondents went beyond correctly identifying this "public code" of perfumes. Participants used both personal and public forms of culture to classify and evaluate the scents; they then applied those classifications and evaluations to reify social boundaries and reproduce social relations—especially with reference to race and class.

Second, cognitive mechanisms guided the use of personal culture in olfactory meaning-making. In contrast to earlier work on this subject (see, e.g., Hoffmann 2014; Lizardo and Strand 2010; Martin 2010; Moore 2017; Srivastava and Banaji 2011; Vaisey 2009), I show that deciphering smells involves a dynamic interaction between nondeclarative and declarative culture, between practical and discursive modes of consciousness. I identify two cognitive mechanisms—embodied simulation and iterative reprocessing—that guide this interaction, and I show how these mechanisms operate when making sense of smells.

Finally, I show that the meanings people attributed to perfumes varied according to

their own social location—especially their race and class. This suggests that to fully understand the role of culture and cognition in olfactory sense-making and meaning attribution, we must carefully attend to "discrepancies and dissonances in how minded bodies and worlds fit together" (Pitts-Taylor 2016:46). People in all social locations may be familiar with public codes of smell, but locational differences influence how they think about and interpret those cultural lessons, and how they select and apply them when making sense of smells and attributing meaning to them.

UNDERSTANDING CULTURE'S ROLE IN OLFACTORY SENSE-MAKING AND MEANING ATTRIBUTION

You encounter some information—in this case, a smell. How do you decipher it? To answer that question, we must build on socio-cultural theories of meaning-making, exploring the role of different forms of culture and the relationships between them in olfactory sense-making.

Types of Culture

When encountering a smell, you might quickly, unconsciously, or automatically react to it as you would other forms of information—on the basis of personal experience and resulting habits of judgment and evaluation. With such reactions, you tap what Lizardo (2017) calls "nondeclarative culture," a concept that builds on Bourdieu's (1990) notion of "habitus" and Giddens's (1984) concept of "practical consciousness." Nondeclarative culture is a component of personal culture and the body is key to its use; it is acquired slowly from repeated exposures or recurrent activities, controlled by what Goleman (2007) calls "low road brain circuitry," and directly elicited "via experiential correlations" and opposed to symbolic mediation (Lizardo 2017:92).

Nondeclarative culture is akin to procedural knowledge—that is, the skills and "know

how” we acquire from our experiences. It does not involve conscious awareness, and once acquired and internalized, it cannot necessarily be explained by those who apply it. Rather, people deploy nondeclarative culture when they perceive “an environmental prompt or opening that requires a response” (Lizardo 2017:93). Nondeclarative culture includes skills such as riding a bike or driving a car, distinguishing humans from animals, or classifying a person’s gender or race upon first meeting. In the case of smell, it may involve the automatic association of a scent with a specific emotion, place, or group of people.

One might also decipher a smell with regard to explicit facts or concepts transmitted via language or other symbol systems. In such cases, one makes use of “declarative culture.” Declarative culture is a component of personal culture; it builds on what Giddens (1984) calls “discursive knowledge”—the things that people are able to verbally express about the social world around them. Declarative culture consists of semantic knowledge—“propositions about the world, at varying degrees of abstraction”; it is usually impersonal but can sometimes be linked to event-specific or autobiographically relevant information (Lizardo 2017:91–92; see also Patterson 2014).

Declarative culture requires minimal exposures; we rapidly accumulate it, store it, and reactivate it using the prefrontal cortex of the brain. Using declarative culture requires the “high road brain circuitry” necessary to the top-down processing of symbolic material (Goleman 2007). As a result, our application of declarative culture is typically slow, deliberate, and reflective. It comes into play when people carefully and consciously classify people, places, objects, or events; reason through problems and potential solutions; build justifications or rationalizations for their opinions or actions; or tap established rules to evaluate information, actions, or possibilities. Declarative culture is used to teach others how to ride a bike, explain how one distinguishes humans from animals, or describe why one classifies a person as White,

Black, or biracial. In the case of smell, it may be used to explain or justify the association one makes between a smell and a place or group.

Finally, one might decipher information with reference to the symbols, discourses, and institutions that members of one’s group or community recognize and share. In such cases, one uses “public culture—the codes, contexts and institutions that organize cultural meanings and bring them to bear.” It is knowledge made common that operates “from the outside-in,” defining people’s actions in ways that can be independent of their personal beliefs (Swidler 2001:161; see also Lizardo 2017; Patterson 2014; Strauss and Quinn 1997). More than riding a bike or instructing others to do so, public culture provides knowledge on what a bike is; when, where, and why one uses it; and whether it is valued in one’s community. Similarly, public culture involves more than making a snap judgment of humanness, gender, or race; it involves more than justifying one’s classifications of the likely smell of a place. Public culture provides people with a consensual definition of what race means, or how genders are distinguished, or the relative values of smells.

Relationships between Types of Culture

These three types of culture are linked. Thus, when we apply culture to make sense and meaning, we do not simply use each element of culture in isolation. We also make use of the relationships that connect types of culture. Figure 1 illustrates these relationships, using what Lizardo (2017) calls the “cultural triangle.”

Our knowledge of public culture is key to two legs of the cultural triangle. Consider first the relationship between nondeclarative culture and public culture. This relationship connects “knowledge how” with a group’s or community’s shared symbols, discourses, and institutions. Sociologists have explored this relationship and its impact on meaning-making in a variety of arenas. Bourdieu (1984), for

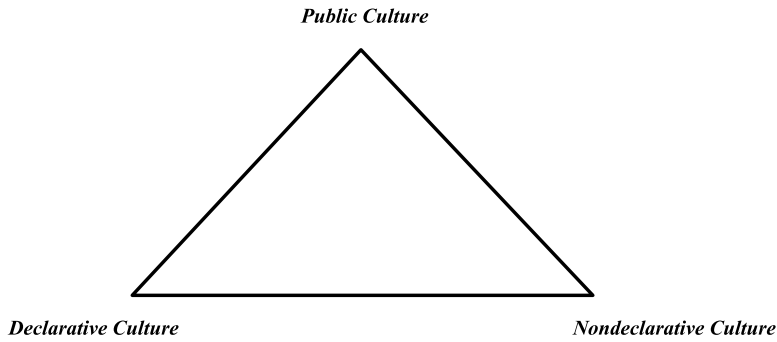


Figure 1. The Cultural Triangle

instance, linked habitus, practice, and field and used those links to explain class distinctions in taste. Leschziner and Green (2013:131) show that culinary creativity emerges from chefs' "action repertoires," seemingly automatic or second nature procedures, as well as a public culture of food, that is, a host of widely shared ideas about appropriate ingredient pairings and preparation techniques. Cerulo (1998) examines violent narratives, showing that storytellers' "formulae" for describing violence are linked to public codes of expression; yet storytellers use these codes without conscious awareness. Smells—like the words and images involved in the classification and evaluation of cultural objects, recipes, and stories—can serve as a social medium that connects internalized "knowledge how" with "outside" cultural codes. Here, I empirically explore how that relationship unfolds.

Now consider the relationship between declarative culture and public culture. Here, we focus on codes, contexts, and institutions and their connections to "knowledge that" (Lizardo 2017:100). Jeffrey Alexander's (2003:12) "strong program" of cultural analysis underscores the importance of this relationship to sense-making and meaning attribution, writing "every action, no matter how instrumental, reflexive, or coerced vis-a-vis its external environment, is embedded to some extent in a horizon of affect and meaning" (see also Alexander and Smith 2001). Important work in cultural sociology demonstrates this connection in action. Swidler's (2001) work on love, for example, presents the meaning of love as

the product of what study participants tell her about love—their "know that" knowledge—and how those testimonies relate to the public codes and institutions that address love. The same sorts of connections can be found in Lamont's (2009) work on the cultural repertoires used to delineate class and race. When we think of smells as part of a symbolic space—sensory information whose meaning is, in part, contingent on "outside" cultural codes and internalized "knowledge that"—we should expect the relationship between declarative and public culture to impact olfactory sense-making and meaning attribution. It is important to empirically document how this process occurs.

Finally, the relationship between nondeclarative and declarative culture points to the intrapersonal dynamics of sense-making and meaning attribution. Cognition is essential to understanding the nondeclarative-declarative relationship, because each form of culture is associated with a specific cognitive style. Research on dual-process models shows that nondeclarative culture aligns with "automatic cognition": rapid, effortless, unintentional thought that allows for rapid information processing. Declarative culture aligns with "deliberate cognition": slow, considered, and measured thought that may override existing schemas in favor of an active search for characteristics, connections, relations, and expectations (see, e.g., Smith and DeCoster 2000).

To date, the most prominent work on the relationship between nondeclarative and declarative culture, their associated cognitive

styles, and their impact on sense-making and meaning attribution assumes independence or parallel operation of these two cognitive-cultural domains, with some even describing them as distinct “warring systems” (see, e.g., Haidt 2012:46). Vaisey’s (2009) work, for example, examines how people make moral evaluations. Vaisey (2009:1703) finds that nondeclarative culture dominates the moral decision-making process: “Most interviewees claim to know the difference between right and wrong in an intuitive way, yet are largely incapable of articulating their moral decision-making processes in substantive, propositional terms” (see also DiMaggio 2002; Hoffmann 2014; Kahneman 2011; Lizardo and Strand 2010; Martin and Desmond 2010; Moore 2017; Srivastava and Banaji 2011).

More recent work points to limitations in the warring systems position (see, e.g., Pugh 2013; Vila-Henninger 2014), suggesting that the two forms of personal culture and their accompanying cognitive styles can operate as interdependent units. Pagis, for example, in interviewing and observing Israeli and American Vipassana meditation practitioners, found that the interpretation of meditative experiences involved a dynamic interaction. People’s experiences of meditative states moved “from the embodied realm to the discursive realm, and some meditators even told me that they think these two forms of self-knowledge are complementary” (Pagis 2009:277). Similarly, Winchester (2016:586) found that the practice of fasting among U.S.-based Eastern Orthodox converts reshaped their subjectivities and subsequent actions via a dynamic interaction between nondeclarative and declarative culture, where “one type of cognition interpenetrates and scaffolds the other.” Finally, Schwarz (2015) studied the meanings attributed to “noise” and the role of such interpretations in building social boundaries. His work also supports an interactive relationship between nondeclarative and declarative culture, showing that subjects’ “boundary delineation projects are always shaped by and against two deep structures, embodied and discursive” (Schwarz 2015:231; see also Evans and Stanovich 2013; Green 2016; Leschziner

and Green 2013; Pagis 2010; Vila-Henninger 2014; Winchester 2008).

Building on this emerging line of work, I argue that making sense of smells begins with the body but necessarily requires various levels of discursivity. Smells are likely deciphered via the interaction of nondeclarative and declarative culture. If this is true, we must move beyond the cultural triangle, not only documenting the interaction of cultural forms, but exploring the cognitive mechanisms that guide the interaction.

COGNITIVE MECHANISMS AND THE ORGANIZATION OF PERSONAL CULTURE

If forms of personal culture indeed interact, what cognitive mechanisms guide that interaction? Several sociologists are pursuing this issue. Ignatow (2009) and Winchester (2008, 2016), for example, draw on the theory of “embodied metaphors” from cognitive linguistics. They argue that metaphorical mappings between bodily experiences and abstract discourse help inform subjectivities and motivate action. Cerulo (2006) borrows from work on categorization in cognitive science, identifying “graded membership” as a cognitive mechanism that, by linking body and mind, leads to asymmetry in classifying best and worst case scenarios. Finally, Shaw (2015) uses cognitive psychology to explore how the embodiment of mental associations and representations influences people’s interpretations of situations.

Here, I add to this important search for the cognitive mechanisms guiding the interaction between different forms of culture in meaning-making. I propose two additions from cognitive science research: embodied simulation and iterative reprocessing. Here, I unpack the general operation of these mechanisms and suggest their role in olfactory meaning-making.

Embodied Simulation

In the mid-1990s, three research teams (Bailey et al. 1997; Barsalou 1999; Rizzolatti et

al. 1996) proposed the *embodied simulation hypothesis*. This proposal suggests we understand language and other informational input not via computational processes but by mentally simulating the experiences that language describes: “We create mental experiences of perception and action in the absence of their external manifestation”: we “see” without the sights actually being there; we perform without actually moving (Bergen 2012:14).

What does embodied simulation look like in practice? Imagine the taste of your favorite candy bar, or how the summer sun feels on your skin. Picture yourself steering your car to avoid a darting squirrel; imagine the smell of your mother’s favorite perfume. Research on embodied simulation shows that most of us not only visualize these experiences—we feel them. We reflexively taste the flavor and texture of the candy even though we are not eating it, or we sense the sun’s warmth on our skin even though it may be winter. We reflexively feel the jolt of a swerving car even if safely seated at our desk, or we feel our mother’s presence and the way her scent made us feel. We use past exposures and experiences to create a powerful mental “image” (containing input from all sensory modalities)—one that we can re-experience. But perhaps most importantly, embodied simulation “makes use of the same parts of the brain that are dedicated to directly interacting with the world . . . simulation creates echoes in our brains of previous experiences, attenuated resonances of brain patterns that were active during previous perceptual and motor experiences” (Bergen 2012:14; see also Clark 1997).

But what of things that do not exist, things with which we have no experience? How do we simulate these? Embodied simulation applies here as well. We feel the nonexistent when we use language to “pair” relevant experiences. Bergen (2012:17) argues that combining words allows language users “to make mental marriages of their corresponding mental representations.” This applies even when the things to which they refer are imaginary or nonexistent. Consider something like roasted crickets (at least, within American cuisine). To think about

and understand roasted crickets, we link our visual systems to the language of roasted crickets, taking previously experienced ideas about what crickets look like and combining them with our roasting encounters. We form new visual combinations by which to experience roasted crickets and give them meaning.

The embodied simulation hypothesis suggests that both nondeclarative and declarative culture—both “know how” knowledge and “know that” knowledge—are experienced through the body. This does not happen because experiences pass through the body to be written on the mind and semiotically processed (as, e.g., Alexander’s [2010] notion of “iconic consciousness” suggests). Instead, nondeclarative and declarative culture reside in the body as powerfully as they reside in the mind. In this way, the role of the body in embodied simulation creates a link—an interdependence between nondeclarative and declarative culture as meaning is constructed. Knowing this, as we explore people engaged in olfactory meaning-making, we should observe clear bodily manifestations of people’s “know how” experience and their “know that” declarations.

Iterative Reprocessing

Embodied simulation links nondeclarative and declarative culture in sense-making and meaning attribution. Another cognitive mechanism—iterative reprocessing—helps us understand the dynamic by which these forms of culture interact.

Cunningham and colleagues (2007) studied the relationship between attitudes and evaluations. Within the evaluative process, their data showed continuous movement between automatic and deliberate cognition. To explain this phenomenon, they developed an “iterative reprocessing” model of the interaction between these two cognitive systems. In the iterative reprocessing model, our initial response to a stimulus, be it a person, object, or abstract concept, may involve an automatic or “quick and dirty” evaluation. But in many cases, the process will then be “complemented by additional reflective processes”

(2007:737). Thus, rather than sense-making being an either-or affair, the process involves a repeated toggling between automatic and deliberative cognition.

How does iterative reprocessing unfold in a real-world circumstance? Cunningham and colleagues (2007:739–40) offer this vivid example:

Imagine that someone is standing next to a sullen looking young man of Arab descent on the subway. Primed by television coverage of terrorist threats, the demeanor of the man coupled with his ethnicity may automatically activate stored representations associated with terrorists, giving rise to a rapid negative evaluation. This initial evaluation may bias subsequent iterations of evaluative processing . . . if the young man reaches for his wallet, the subway rider may worry that he is about to pull out a gun, and may indeed mistakenly perceive the wallet as a weapon. . . . At some point, however, the perceiver will likely detect a mismatch between his or her current evaluation of the target and reality. . . . This discrepancy will trigger additional iterations and increase reflective processing to resolve the conflict between the current evaluation and reality.

In this example, the observer begins making sense via an automatic reaction—one tied to previously inscribed anti-Arab lessons that trigger rapid physiological and emotional reactions (e.g., fear, distrust). But the story does not end there. Observers will continue to look for more information, reflectively consider it, and revise their initial assumptions. Such deliberations may then trigger new representations that, like one's initial observations, may be renegotiated and re-evaluated with new incoming information.

Using fMRI technology to track brain activity, Cunningham and colleagues substantiate the repeated movement between automatic and deliberate cognition in meaning-making. In pursuing a cultural approach to olfactory meaning-making, we can explore the iterative reprocessing process outside of the laboratory,

albeit using different sorts of observations. In studying how people decipher smells, we can chart the reports, responses, and narratives involved in constructing meaning. We can then document how people toggle between what they “know” yet cannot explain versus what they “know that they know” and can explain. Such data will illuminate the dynamic process that drives our use of culture in defining the meaning of smells. However, in keeping with the cultural sociology project, we must also attend to the ways in which one's location in the sociocultural field differentially affects the way we make sense of smells and attribute meaning to them.

SOCIOCULTURAL CONTEXT, SENSE-MAKING, AND MEANING

The role of culture and cognition in olfactory sense-making and meaning attribution is not necessarily uniform across types of people and varying situations. People may have similar cultural resources and may recognize the same public codes, but they may use those resources and apply those codes in variable ways (Swidler 2001:52). As Pitts-Taylor (2016:45) writes: “Because bodies are differently located in the social world, and social hierarchies affect the experiences of body-subjects, embodiment is as much a site of difference as it is a site of commonality” (see also Clough 2007; Pitts-Taylor 2014). Thus, when we explore the role of culture and cognition in olfactory sense-making and meaning attribution, we must attend to the sociocultural location of meaning-makers, noting the impact of their similarities and differences in the deciphering of smells. Understanding smells, like other types of stimuli, is likely “shaped by one's unique location and peregrinations in physical and social space” (Wacquant 2015:3).

Several studies link elements of sociocultural location (e.g., age, class, education, gender, race) to evaluations of cultural and sensory data. Empirical studies on the evaluation of music (e.g., Bryson 1996; Lizardo and Skiles

2016), auditory sounds (e.g., Maslen 2015; Schwarz 2015), gastronomical taste (e.g., Bourdieu 1984; Cappeliez and Johnston 2013; Johnston and Baumann 2014; Oleschuk 2017), and political, religious, and popular media images (e.g., Cerulo 1995a, 1995b, 2000; Cerulo and Barra 2008; Hunt 1997; Press 1991), for example, show that sociocultural location can be pivotal to understanding the messages people draw from such information. Moreover, several studies show that people use their interpretations to rank people or distinguish and define “them” and “us.” Bryson (1996), for example, shows how people use musical styles and tastes to erect boundaries between themselves and others in lower socioeconomic statuses. Schwarz (2015) found that perceived class, racial, or ethnic differences in “sonic styles” influenced students’ evaluation of noise. In addition, students used these perceived differences as a resource for drawing symbolic boundaries to divide students and locals (Schwarz 2015:206).

The role of sociocultural location in deciphering smells has received little attention in the literature. Thus, as we unpack how various forms of culture impact olfactory sense-making and how cognitive mechanisms guide the use of culture in olfactory meaning-making, we must situate those processes in the sociocultural field and explore how different sociocultural locations can impact olfactory meaning-making.

ASSEMBLING THE PIECES: RESEARCH QUESTIONS

To fully explore the role of culture, cognition, and sociocultural context in deciphering smells, I propose five targeted research questions. The first addresses the public olfactory code associated with perfumes. Establishing this code, and people’s familiarity with it, is a necessary condition to exploring the relationships contained in the cultural triangle:

Research Q1: Are perfume manufacturers utilizing a public olfactory code—that is, do manufacturers tie certain notes or combinations of notes to stated meanings, targeted users, and contexts of use, and do most people recognize this code?

Next, I examine the relationship between nondeclarative culture and public olfactory codes, asking:

Research Q2: Do people have nondeclarative proficiency with the public code of perfumes—that is, can they “guess” notes and match marketing descriptors even though they cannot explain how they do this?

Our understanding of olfaction sense-making and meaning attribution must also address the relationship between declarative culture and public culture. Here, I ask:

Research Q3: Do individuals have declarative knowledge of public codes of smell—that is, can they talk about a manufacturer’s intended meaning, target markets, or target sites of use?

Moving on, I examine the relationships between nondeclarative culture and declarative culture with reference to olfactory meaning-making. I pay special attention to two cognitive mechanisms—embodied simulation and iterative reprocessing—associated with these two forms of culture, and I explore how these mechanisms guide the relationship between these two forms of culture—that is, facilitating either parallel or interdependent operations. I pose two interrelated questions to address these issues:

Research Q4a: When people process a smell, does the reaction involve embodied simulation—do people appear to physically feel the reaction and are they aware of these sensations?

Research Q4b: What role does embodied simulation play in using declarative and/or nondeclarative culture to decipher smells—that is, does embodied simulation facilitate an interaction between what people declaratively “know” and how they “react” to the smells (nondeclarative culture)? If so, what is the nature of that interaction?

Finally, in exploring how minded bodies and worlds fit together, I ask:

Research Q5: How does sociocultural location—for example, age, education, gender, occupation,

race, and social class—influence how people use culture to think about smells, make sense of them, and attribute meaning to them?

METHODS

The Research Site

The commercial perfume market as we know it today is well-established, with synthetic “fragrance chemistry” dating back to 1868 (Turin and Sanchez 2008:35). Perfumes are a ubiquitous part of most modern cultures.² In the United States, for example, department stores carried nearly 1,200 brands of perfume in 2015, and sales revenues topped 6.1 billion dollars. In the same year, global sales were nearly 29 billion dollars. In the United States, 83 percent of women report regularly wearing perfume; among men, 23 percent report wearing cologne all the time and 63 percent say they wear it occasionally (The NPD Group, Inc. 2013, 2016). Perfumes are part of the cultural landscape. We encounter, attend to, experience, and assess these scents on a daily basis, and they are part of most interactions and experiences.

Manufacturers treat perfumes as targeted communication. A fragrance may be designed as “suitable for a busy career day, or a leisurely bike ride on a sunny beach” as Calvin Klein described *Eternity*, or to present “warm embraceable essences that stir affections” as Ralph Lauren described *Romance*, or to convey “sophistication not naïve innocence” as Paloma Picasso described her signature fragrance of the same name (Moran 2000:111, 136, 172). Each fragrance is invested with an intended meaning and aimed at certain types of buyers and certain sites of use. Manufacturers codify these messages in three ways. First, they create olfactory codes—a grouping of scent notes that emerge from perfume formulae. These notes are drawn from six basic olfactory categories: chypre or woody scents (e.g., bergamot or patchouli), citrus scents (e.g., orange or lemon), floral scents (e.g., jasmine or gardenia), fougere or fern scents (e.g., lavender or oak moss), green scents (e.g., grass or rosemary), and oriental or spice scents (e.g., musk or balsam).³ Every perfume

claims to be unique and is protected by a proprietary formula. Cerulo (2015), however, notes certain structural similarities found in perfumes within specific marketing categories, suggesting a system of notes that form public olfactory codes patterned according to target users and intended situations of use. Second, manufacturers codify a perfume’s message using words and images in their marketing materials. Finally, pricing is used to target certain types of buyers. The message conveyed by every perfume is designed to excite the senses, trigger memories, and beckon reflection, evaluation, and classification. Every element of culture plays a part in deciphering smells.

Selecting Perfumes and Recording Their Messages

Several print and online sources now give information on available perfumes, their scent notes (but not the actual formulae), and their target markets. To choose perfumes for this study, I consulted two of the most comprehensive print collections (Moran 2000; Turin and Sanchez 2010) and two of the most popular online sites—Fragrantica (<http://www.fragrantica.com/>) and Perfume.com (https://www.perfume.com/womens_top_10/6). I identified the top 50 best-selling perfumes of 2015. From this list, I sought three perfumes with very distinct markets so I could examine how people deciphered very different messages. Specifically, I selected a very expensive scent designed for “dressy” or special occasions (hereafter referred to as “evening elegance”), a moderately priced scent designed for workplace or leisure use (hereafter referred to as “daytime professional”), and a very inexpensive brand designed for all-purpose use at a very affordable price (hereafter referred to as “drugstore bargain”). I used the “eau de toilet” strength of each fragrance as it is the most popular with consumers. I restricted my sample to perfumes manufactured for women, as they are the scents to which people are most commonly exposed. (In the focus groups, participants were made aware of this restriction.) With three perfumes in hand, I

consulted the manufacturers’ websites to determine the scent notes of each fragrance, the intended message of the perfumes, the scents’ target users, and the scents’ target usage sites.⁴

Assembling Focus Groups

I used focus groups to garner data on how people make sense of perfume smells and their intended meanings. Focus groups are especially helpful for examining how people construct meaning and then negotiate that meaning in interaction with their own thoughts and the responses of other group members (see, e.g., Cerulo 1998; Gamson 1992; Krueger and Casey 2014; Morgan 1988).

To recruit group participants, I used the following announcement:

Wanted: Focus Group Participants

We need 60-90 minutes of your time. We are looking for both men and women to smell three different perfumes. Then, we want your opinion about each perfume’s components, “message,” the buyers targeted by each manufacturer and the places and situations they view as appropriate for use.

The announcement also contained my contact information, instructions for volunteering, the location of the groups, and information on participant compensation. I posted the recruitment ad on message boards and social media sites linked to a variety of groups and community organizations located in my geographic county. These groups included schools, places of worship, clubs, service organizations, and town newsletters. My sample is by no means representative. Rather, as is often the case in exploratory research, I used purposive sampling and worked to achieve a demographically heterogeneous sample. In total, I convened 12 focus groups, talking with 73 individuals. Group size ranged from 5 to 9 people with a median size of 6. Table 1 gives a breakdown of participants’ demographic characteristics.

Table 1. Demographic Characteristics of Focus Group Participants

| | |
|-----------------------|-----|
| Age | |
| 21 to 30 | 23% |
| 31 to 40 | 18% |
| 41 to 50 | 15% |
| 51 to 60 | 27% |
| 61 to 70 | 17% |
| Education | |
| High School | 15% |
| Some College | 22% |
| College Degree | 37% |
| Graduate Degree | 26% |
| Gender | |
| Female | 78% |
| Male | 22% |
| Marital Status | |
| Married | 50% |
| Single | 35% |
| Widowed/Divorced | 15% |
| Occupation | |
| Administrative | 18% |
| Clerical | 8% |
| Education | 20% |
| Engineer/Construction | 10% |
| Finance | 3% |
| Homemaker | 7% |
| IT | 3% |
| Medical | 5% |
| Retired | 3% |
| Self-Employed | 7% |
| Service | 8% |
| Students | 8% |
| Race | |
| African American | 16% |
| Asian | 15% |
| Latino | 12% |
| White | 57% |
| Religion | |
| Atheist/Agnostic | 12% |
| Catholic | 37% |
| Hindu | 7% |
| Jewish | 10% |
| Muslim | 8% |
| Protestant | 26% |
| SES | |
| Upper | 2% |
| Upper-Middle | 25% |
| Middle | 56% |
| Working | 15% |
| Poor | 2% |

Protocol

I used the following protocol for the focus groups. First, I arranged participants around a conference-type table and welcomed them to the group. I then described the purpose of the research as follows:

The purpose of this research is to better understand how we make sense of commercially marketed perfumes. I want to determine how accurate we are when we attempt to identify a perfume's components, the "message" the fragrance manufacturer is trying to convey, and the people and places for which the scent is designed. Approximately 75 people will participate in the study, and each individual's participation will last approximately 90 minutes.

You will smell three perfume samples—one at a time. When you smell a perfume, you will record your reactions to the fragrance on the form provided to you. Some of the questions offer specific choices for your answers while others are open ended. Once you have recorded your answers, we will discuss them as a group. When the discussion is complete, we will move on to the second perfume, following the same process. When discussion of the second perfume is complete, we will move on to the third and final perfume. Before we disband, I will ask you to fill out a short questionnaire on your demographic characteristics.

I asked participants if they had any questions and then walked them through the consent form. Once all consent forms were signed, the research process began.

I handed each participant a perfume sample and a reaction form. I asked participants to spend a few moments just smelling the perfume sample. While participants sampled the perfume, I carefully noted and recorded their bodily response to each scent. I did so for two reasons: (1) to compare bodily responses to the characterizations participants wrote on reactions forms and (2) to discuss with participants' their bodily responses during group discussions. Then, I asked participants to fill out the reaction form.

As Appendix 1 shows, the first question listed six broad scent categories upon which nearly all perfumes are built. The second question listed a series of words manufacturers and those writing about perfumes frequently use to describe the fragrances in the study. For each question, I asked participants to check as many categories and descriptors as they thought appropriate to the perfume sample. (For more on these terms, see Moran 2000:27–35.) Question three was open-ended and gave participants a chance to write their own descriptors of each fragrance. Question four asked participants to identify the demographics of the manufacturer's targeted buyer; here, I prompted respondents to consider the user's general age, occupation (using their own words), race (choosing from African American, Asian, Latina, White, or any race), and social class (choosing from upper, middle, working, or poor). Finally, I included two additional open-ended questions, allowing participants to use their own words to identify the manufacturer's target user and situation or place of use (see Appendix 1). Once these written tasks were completed, the group discussed their answers. When the discussion was over, we moved on to the next fragrance—smelling, writing, and discussing—until all three perfumes had been sampled. I concluded the session by asking participants to fill out a short questionnaire containing information on their demographic background (e.g., age, gender, race, social class [see Appendix 2]).

During the group discussion, I reviewed each question on the reaction form and asked participants to explain their answers. In addition, I asked everyone to report their physical sensations when smelling each sample and the images they envisioned while sampling—including if or how one image led to another.

To ensure the validity of the focus group process, I followed a systematic protocol to maximize the potential for accurate results. I pre-tested my questions to ensure they were easily understandable and nonthreatening. In the actual groups, I watched respondents' physical reactions, often asking them to

reflect on those reactions in an effort to determine if the reactions were automatic or enacted for the benefit of the group. I listened carefully to respondents' comments and clarified anything that seemed ambiguous. As we completed each sampling, I summarized participants' characterizations to ensure I was accurately recording their responses.

FINDINGS

I organize my findings according to the five research questions presented earlier. The story begins by documenting the presence of a public olfactory code and people's familiarity with it.

Q1: Are perfume manufacturers utilizing a public olfactory code—that is, do manufacturers tie certain notes or combinations of notes to stated meanings, targeted users, and contexts of use, and do most people recognize this code?

For each perfume used in this study, I found that manufacturers created a profile—a message based on what we might call a public olfactory code. Fragrance notes were combined to create a specific meaning and convey an association with a certain kind of person and a certain place of use. For example, the evening elegance fragrance builds on four general scent categories: citrus, floral, spice, and woody. These general categories include what the manufacturer calls “adrenaline rich,” “sweet,” and “soft” notes—coffee, jasmine, sambac, fleur d’oranger, vanilla, cedar, and patchouli. The fragrance is said to be “urban,” “edgy,” and a “forbidden nectar” that provides a “modern, young, and vibrant interpretation of addiction.” The manufacturer targets the fragrance toward someone “glam,” “with attitude” and “enigmatic beauty.” Sales materials show women wearing the perfume in upscale clubs or dark, upscale hotel bedrooms. The scent sells for about \$115.00 per ounce, financially restricting the fragrance to a certain type of buyer or a special situation or occasion.

The daytime professional fragrance presents a different message. The fragrance builds on three general scent categories:

citrus, floral, and woody. The manufacturer says the fragrance includes the “clean, clear” notes of apple, cedar, bluebell, white rose, and citron. In addition to listing these fragrance notes, the manufacturer describes the perfume as designed for today’s “modern woman”—a busy professional who is “self-assured” and “confident yet always feminine.” The message is “brilliant and light” like a “sundrenched summer day.” Users are often depicted outside in lazy, leisure activity. The fragrance sells for about \$60 per ounce, making the fragrance more affordable than the evening elegance scent and presumably meant for more frequent use. Finally, the drugstore bargain specifies only a floral note; no further breakdown is offered. The scent is described as an “impression” of another more expensive fragrance. Users or usage contexts are never pictured in marketing. The fragrance is simply described as “bound to get noticed.” The fragrance sells for under \$4.00 per ounce, making it widely accessible.

For each perfume, manufacturers show us a public olfactory code whose elements are linked to certain types of messages, perfume users, and target sites of use. Participants were quite accurate in identifying those codes. Among participants, 89 percent correctly named the scent categories used in the evening elegance scent, 86 percent were correct for the daytime professional scent, and 90 percent correctly identified the categories for the drugstore bargain brand. Participants also did quite well in identifying the descriptive words attached to each perfume: 87 percent correctly identified the terms used for the evening elegance scent, 88 percent for the daytime professional scent, and 89 percent for the drugstore bargain brand.

Recall that participants also offered their own descriptive words for each fragrance. Of the descriptors used for the evening elegance fragrance (e.g., perceived ingredients such as jasmine, patchouli, or vanilla, and “personality” terms such as sexy, strong, edgy, glamorous, and luxury), 79 percent either matched or were synonymous with words used in marketing materials. The same was true for 83 percent of descriptors provided for the daytime

professional fragrance (e.g., apple, citron, fresh, clean, outdoors, leisure, and summer breeze). Ninety-three percent of participants agreed with the manufacturer's description of the drugstore bargain brand as floral and "bound to get noticed." Participants offered words such as flowers, floral, and garden. Yet, many other descriptors offered for this scent were negative and thus would never be used in marketing materials (e.g., noisy, loud, cheap, drug store, cleaning, air-freshener, alcohol, and old lady). The negative descriptors did, however, accurately reflect the inexpensive nature of the product.

Participants were also quite accurate in describing each manufacturer's target user. When combining the close-ended answers with the open-ended descriptors, I found that participants offered a dominant profile for each fragrance's target user—one that greatly overlapped with the manufacturers' intended targets. For example, 63 percent of participants described the target user of the evening elegance fragrance as a moderately young, upper- or upper-middle-class professional of any race, someone "sexy and glamorous," "desirable," "rich," "sophisticated," and often "out on the town." Seventy-three percent described the target user of the daytime professional scent as a young, White, middle-class office or white-collar worker who was also "outdoorsy," "athletic," "fresh," and "confident." In the case of the drugstore bargain brand, 63 percent of respondents described the manufacturer's target as an old, low-income woman of either Latino or any race; she was likely retired, unemployed, or working in a low-level position such as a bus driver, housekeeper, or sales clerk/cashier, and was "grandmotherish," "brash," "played bingo," or "shopped in the dollar store."

Finally, using their own words, participants described the context of use they believed each manufacturer was targeting. Here too, there was much concurrence between participants' sense of the fragrances and manufacturers' messages. The settings most frequently cited for the evening elegance fragrance were "elegant parties,"

"galas," or "fancy restaurants" (77 percent) and "romantic settings," "hot dates," or "the bedroom" (69 percent). Participants also frequently used words such as "urban," "downtown," "nighttime," and "evening on the town" to describe appropriate settings (59 percent). The daytime professional fragrance was most frequently placed in leisure outdoor settings (67 percent) or in daily office wear (62 percent); in 67 percent of cases, the scent was further described with words such as "beach," "bike ride," "spa," "sports," "summer," and "working." The drugstore bargain brand was typically described as an "all purpose" or "daily wear" fragrance (72 percent). Fifty-seven percent of participants used words such as "family party," "hair event," "Nana's bedroom," "old people's outing," and "religious event" to describe the appropriate setting for this fragrance. A majority of participants placed it in the bathroom, churches and temples, or bingo games (54 percent).

Only 6 percent of participants correctly guessed any of the fragrances used in the study. Thus, one cannot attribute participants' answers to the recall of specific marketing campaigns. None of the participants were affiliated with the production or marketing of perfumes, and no one indicated a specialized interest in perfumes. Consequently, these findings suggest that manufacturers are forwarding a fragrance message—one built from images and ideas that comprise a public code—a code to which potential buyers are connected.

Q2: Do people have nondeclarative proficiency with the public code of perfumes—that is, can they "guess" notes and match marketing descriptors even though they cannot explain how they do this?

If participants have nondeclarative proficiency with the public code of perfumes, they should display an automatic reaction to a fragrance—a gut feeling about a perfume's notes, target users, and places of use. Yet, if pressed on such information, participants

may not be able to readily explain the source of this knowledge.

This pattern was quite evident in focus group discussions. For example, most participants' first reactions to the evening elegance scent involved associations with desirability and glamor. When I asked participants why they chose such descriptors for this fragrance's target user, one participant replied, "I don't know . . . you know it's just . . . it's like . . . that's what I saw. This is like a sophisticated fragrance." Another said, "It just reeks of glamor." Many participants described the evening elegance fragrance as sexy or appropriate for intimate situations. When asked to explain that response, one person said, "This is all about a bedroom, you know? That's all I can say." Similar explanations emerged in an exchange between two participants:

Investigator: You described this scent as sexy . . . something appropriate for an intimate setting. Can you tell me what makes you describe the perfume that way?

Participant 1: I don't know . . . I just saw wedding night.

Participant 2: Yeah . . . exactly . . . maybe not a wedding, but, mmmm . . . you're with me tonight and I want you to notice me . . . I'm memorable.

Participant 1: And it just oozes sensuality. I can't describe it exactly, but it smells hot . . . sexy.

These sorts of automatic gut reactions emerged in initial discussions of the descriptors chosen for the other fragrances as well. For example, when I asked participants why they placed the daytime professional scent in a leisure outdoor setting, one person said, "I just get something fresh . . . oceanic . . . that's all I can really say." Another said, "I can't explain it . . . I just feel like it's something you'd wear for a bike ride . . . on a beautiful trail somewhere." And when I asked participants to explain why they placed the drugstore bargain brand in the bathroom, churches and temples, or bingo games, one person said, "Isn't it obvious . . . 'nough said." Another replied, "It's just really cheap and old . . . know what I mean?"

The "everybody knows" quality of these initial reactions to perfume samples illustrates the relationship between nondeclarative culture and public culture and its importance to deciphering smells. Participants began their sense-making journey with an automatic response to the scent. They recognized the public code contained in the smell but could not, at first, explain how they knew it. Thus "know how" knowledge dominates the early stages of olfactory sense-making and meaning attribution. But the process does not end there.

Q3: Do individuals have declarative knowledge of public codes of smell—that is, can they talk about a manufacturer's intended meaning, target markets, or target sites of use?

As focus group participants continued to discuss their reactions to each sampled fragrance, the link between public codes and declarative culture became visible. Participants consciously adopted a discourse that tapped each scent's marketing categories as well as the characteristics of its intended users. In some cases, the impressions were linked to direct experience—the scent reminded participants of someone they knew or an element of their past experience. But impressions were also linked to experiences associated with more general, culturally marked settings. Participants' declarative knowledge of public codes reflected material stored in both episodic and semantic memory.

Scent and Social Class

The link between declarative culture and public olfactory codes rang especially true when participants linked fragrances to social class. Consider the following exchange between two participants as they discussed the evening elegance fragrance:

Participant 1: This is . . . ummm . . . a standout kind of fragrance. I see someone who wants to be noticed. I've been in places that smell like this, you know what I mean? That's what it reminds me of. People are "dressed to the nines." They're at a gala or a four-star

restaurant and surrounded by many other people. They're all well-healed and they know it! I smell this and I think important . . . which also means wealth. I feel impressed.

Participant 2: Yeah, I thought that as well. This smells like someone who is well situated, right? She's at the opera or a very exclusive restaurant. You pass by her table and you know . . . you have to notice her because of her elegance. That's the smell. You know she's important and attractive . . . and also very sexy.

Another participant said:

This is someone who wants to stand out, either because she's wealthy, privileged, or just very sexy and cool. The smell goes with her . . . it goes in certain places . . . someplace special . . . and a nighttime place. I feel like you walk past her and that smell makes you look twice, and from the smell, you know who you're dealing with. [She smells the fragrance stick again.] The smell makes *me* feel special. If I wore this, I'd feel like I was making a statement.

Discussion of the drugstore bargain brand yielded similar declarations of public codes—although here, we find codes associated with a lower socioeconomic status. Participants translated their initial reactions toward the scent by using descriptors such as “cheap,” “drug store,” “cleaning,” “air-freshener,” “alcohol,” and “old lady,” and they often linked these ingredients and characteristics to old age (71 percent) and the poor or working-class (60 percent). One participant noted:

Oh God. . . . This is a bingo game at my church. I smell this all the time. Old ladies wearing too much of something, well, awful. Or maybe a nursing home—in the social room. It's cheap and awful . . . smells more like a cleaning product.

Another participant offered:

This is someone who can't afford perfume. Maybe a teenager, but more likely someone older . . . on a fixed income. It smells old-fashioned.

The class elements of these descriptions are stark and strongly linked to the public codes manufacturers use in targeting the fragrance—that is, privilege and luxury in the one case, cheap and ordinary in the other. Participants seemed very familiar with the public code and could easily talk about it in ways consistent with declarative culture. Moreover, participants' declaration of the public code served to “place” fragrance users, thus reifying class boundaries.

Racialization of Fragrances

The connections between declarative culture and public codes also helped participants racialize fragrances. Earlier, I mentioned that “any race” was the most frequent characterization of the evening elegance fragrance. But this perfume was the only fragrance to be identified specifically as appropriate for Asian or African American targets—35 percent of participants answered this way. When I asked these participants to explain that attribution, I learned that the smell of patchouli seemed most likely to elicit the association. For these individuals, patchouli evoked certain racially specific contexts. As one participant explained:

Participant: This reminds me of something used in rituals—an oil for the hair. It's strong and captures you. It's a very Asian smell for me. [The participant was Asian.]

Investigator: Is it something you might have worn? Or someone you know?

Participant: No . . . not me, and I'm not picturing any one person or event. It's something I've experienced many times. So it just puts me in mind of temple . . . a ritual . . . that's why I am saying the user is likely Asian.

In another group, a participant said:

I sometimes go into stores selling hair and body oils and incense and stuff . . . mainly to Black patrons. [She is Black and she looks toward another Black participant.] You know what I mean, right? [That person nods affirmatively.] I associate it with the musk and oils being sold in these kinds of stores—mainly to other Black women. To me, this is like a Black smell.

I saw similar processes at work when participants reacted to the daytime professional fragrance. Recall that participants correctly identified floral and citrus elements as the central ingredients of the daytime professional scent; they characterized the scent using words such as “fresh,” “clean,” “light,” “outdoors,” and “summer breeze.” Sixty-seven percent of participants associated these ingredients and characteristics with youth, Whiteness, and the middle class. Consider this exchange between myself and two participants:

Participant 1: Well first, I think it’s interesting that you asked us to identify the user’s race, ’cause this is definitely a White girl’s fragrance . . . a young White girl. [Several others shake their head in agreement.]

Investigator: Really . . . why do you say that?

Participant 1: It’s just, you know, what you smell in every office or maybe at the beach. That sorta clean, fresh smell.

Investigator: But couldn’t someone from a non-White race smell like that?

Participant 2: But they don’t. A Black girl, for example, [she points to herself] would view this as boring. This is the pretty young White thing. A Black girl would want a bolder, deeper, spicier smell. [Participant 1, who is also Black, nods in agreement.]

The drugstore bargain brand was often racialized by participants as well. In written answers, 32 percent of participants identified Latinas as the likely target user. In group discussions, many more participants (57 percent) explicitly linked Latinas to the scent. This link did not speak to personal experience with a specific Latina woman, but to images inscribed by cultural lessons residing in racialized contexts. One participant noted:

This is like “too much” and when I think of that brassy, flashy smell, I think of Latinas. I know that’s an awful stereotype, but that’s the image that came to my mind. Like when I would pass by the Latina lunch table in high school, it smelled like this.

Another participant said:

This is so “in your face.” I think any race could wear this, but something about it makes me

think Hispanic. It’s noisy. It’s probably from a drugstore . . . cheap and just too strong.

Here, the smell of race, like that of class, is part of participants’ discourse; it is not based simply on their experience with one person, but their exposure to olfactory codes associated with racialized contexts. As the sense-making process moves beyond initial reactions, declarative culture and its links to public perfume codes become central to classifying a smell and using that evaluation to reify race-based similarities and differences.

Because I asked explicitly about race, one could argue that participants were “primed” to racialize the scents. Yet, if people were simply primed to focus on a characteristic atypical to making sense of fragrances, participants might have pushed back and suggested that race and class were irrelevant to their impressions of the fragrance. Indeed, 14 percent of participants expressed such reactions in group discussions, saying “I never thought of this scent as connected to a specific race,” or “I don’t think class has anything to do with it—you like it or not no matter who you are.” However, 73 percent of participants explicitly told me they regularly associate fragrances with certain races and classes. Moreover, these participants were quite willing to elaborate those associations. Participants showed no embarrassment in characterizing the daytime professional smell as a “White girl’s smell” or coupling olfactory descriptors such as fresh and clean with Whiteness or the upper, upper-middle, or middle classes. Participants were quite open in linking spicy, exotic smells to Blackness or Asianness and associating cheapness and loudness with Latinas or the poor. Although self-presentation concerns cannot be dismissed when considering focus group data, these responses (some of which were non-normative) enhance confidence in the results.

Q4a: When people process a smell, does the reaction involve embodied simulation—do people appear to physically feel the reaction and are they aware of these sensations?

When engaged in embodied simulation, we decipher message meaning by reenacting the experience that the message describes. I witnessed evidence of this process repeatedly in focus groups. When presented with perfume samples, participants often closed their eyes, waved the sample stick, paused and reflected, often repeating that action sequence several times. During this process, many study participants seemed “transported,” they were taken out of the group setting and inhabiting another place or time. Participants also appeared to “feel” the simulation, exhibiting changes in body position (e.g., self-touching, relaxation of posture) and facial expression (e.g., smiles, laughter, scowls, tears).

When participants tied meaning to a positive experience or admired person, they often reported feeling “warm all over,” “tingly,” or “happy,” and they showed positive markers such as smiles or what one participant called “self-hugs.” In contrast, participants who associated the meaning of a scent with something or someone negative regularly displayed scowls or frowns, shuddered, and backed away from the group table; they said things such as “ugh,” “oh no,” or “blecchh” and reported feeling “headachy” or “nauseous.”

Not all reactions were so emotionally charged. Nevertheless, people reported feeling physiological sensations when smelling a fragrance. Participants sampling the evening elegance fragrance reported feeling “glittery,” “bare shouldered,” and “touching silky things.” When it came to the daytime professional fragrance, subjects most often associated the smell with feelings of being outdoors: “I feel like I’m on the beach with a light wind moving across my face.” One participant tilted her head upward and said, “I can feel the warm sunshine.” The drugstore bargain fragrance drew physiological responses as well. People held their nose and scowled as they reported feeling like they were “in a nursing home” or “in a bathroom.”

The vividness and power of the responses was striking, illustrating the very tenets of embodied simulation. Subjects seemed to step into the smell, inhabit its components, and feel the memories it triggered. Howes

(1987) and later Connerton (1989) refer to this as “transubstantiation”—the sedimentation of past into the body. These reactions occurred with reference to both episodic and semantic memories, supporting the idea that embodied simulation links nondeclarative and declarative culture via bodily response.

As we might expect, intimate or autobiographical connections to a smell—concrete, particularized experiences—seemed to result in more emotionally intense simulations than did smells tied to more general or abstract experiences built via language pairings. Thus, it may be useful to think about embodied simulation along a continuum of intensity, with the strength of the simulation strongest when triggered by a concrete experience.

Q4b: What role does embodied simulation play in using declarative and/or nondeclarative culture to decipher smells—that is, does embodied simulation facilitate an interaction between what people declaratively “know” and how they “react” to the smells (nondeclarative culture)? If so, what is the nature of that interaction?

As mentioned earlier, people had automatic reactions to perfumes—reactions that illustrate nondeclarative culture in action. They then elaborated those reactions using declarative culture. As participants continued to state their reactions, they often toggled between nondeclarative and declarative culture, suggesting the type of dynamic relationship proposed in iterative reprocessing models.

The dynamic interaction of nondeclarative and declarative culture was most obvious when people’s automatic reactions stood in opposition to their justifications and explanations. For example, one participant smelled the drugstore bargain sample and recoiled a bit from his first exposure, grimacing and saying “oooohhhhh.” Then, after a period of reflecting with closed eyes, he smiled, rocked a bit in his seat, and began to softly cry. During the group discussion, he said:

This reminds me so much of my grandmother. Whenever I went to her house as a kid, this smell was in her bedroom. She had a powder

that smelled exactly like this. When I closed my eyes here, I felt like I was standing right there! When she would hug me, I smelled this all over her. [He pauses.] As I think about it now, my grandmother probably bought her perfume in a drugstore or a dollar store—that type of fragrance. So this is cheap, smells a little like a cleaning product I think. [He pauses again.] . . . but still.

Another participant, after sampling the daytime professional scent, smiled for a moment, but then scowled, shook her head, waved her hands slightly, and pushed herself a few inches away from the table. In the group discussion, she both justified and tempered her reactions:

This fragrance reminds me of a woman I used to work with. She was very professional, always nicely dressed and fresh looking, very outdoorsy too—like someone up-and-coming. In my mind, she smelled like this. But she was very aggressive and she wasn't very nice to other people in the office. Ugh . . . I just started picturing her in my mind when I smelled this perfume. It made me mad! So while the scent is nice, light, pleasant, I can't like it.

In another example, a participant, after sampling the evening elegance scent, first leaned back saying “whooh . . . strong.” In a few moments, she donned a smile. She waved the fragrance stick, cupped it in her hand, and then placed it next to her heart. She told the group:

This reminds me of my mother. This is the smell I remember from special occasions . . . like Christmas Eve . . . yeah . . . this reminds me of something my mother would wear to mass on Christmas Eve every single year. Oh my God . . . I feel so warm right now.

Toggling back, she continued, “I wouldn't necessarily wear this, but I feel I know the smell, so I really like it. It's a good memory.”

Of course, the interaction between nondeclarative and declarative culture did not always involve contradictory reactions. One participant, while smelling the evening elegance fragrance, started to smile and began running her hands over her neck, shoulders, and arms; she said “glittery . . . bare shoulders.” These

utterances seemed an automatic response to the fragrance emerging from nondeclarative culture. When I asked her to elaborate, the following exchange occurred:

Investigator: What made you describe the perfume that way?

Participant 1: Well . . . it's just something I feel I've smelled in a fancy nightclub where everyone is wearing something glittery with maybe spaghetti straps or something. [She smells the sample again, inhaling deeply.] You know I smell jasmine, patchouli . . . very sexy for some reason . . . which make me picture places I've been where very glamorous, elegant people hang out.

Another participant, after smelling the drugstore bargain brand, said:

Oh my God—that's awful . . . whew! Smells antiseptic or something. [He pauses and then elaborates.] I don't play bingo, but this is how I imagine a bingo hall would smell—full of this cheap smell. Or like on a senior citizen bus trip. That's how I imagine it would smell. [He pauses again.] But whew, there's that cleaning thing again. I feel sanitized!

In these examples, nondeclarative culture informed the initial, automatic responses to a scent, and declarative culture helped people elaborate or explain that response. These participants, like others in the study, toggled back and forth as discussion ensued. As iterative reprocessing models suggest, bodies deliver sensations, and persons process those reactions based on autobiography and cultural messages that populate the contexts in which experiences occur. One may not initially like the smell of a drugstore bargain perfume; indeed, one may initially recoil from it. But if we experienced that scent relative to a person or event that carries positive memories and feelings, we may toggle back and forth as we reach for meaning. Similarly, we may be attracted to the smell of an “evening romance” scent upon first exposure. Then, as we toggle back and forth between first impressions and connections to culturally valued settings (e.g., a chic restaurant or a romantic interlude), the positive meaning attached to the smell may become stronger. In this way, cognition guides

our use of culture, allowing us to move back and forth from “knowledge how” to “knowledge that” as we build olfactory meaning.

Q5: How does sociocultural location—for example, age, education, gender, occupation, race, and social class—influence how people use culture to think about smells, make sense of them, and attribute meaning to them?

Participants used various forms of culture to attribute meanings to the fragrances used in the study. Cognitive mechanisms guided the use of culture. However, although familiarity with public perfume codes was largely shared, the assessments of perfume notes, messages, target users, and intended sites of use were not universal or uniform. Certain descriptions of a perfume’s target user or usage site varied according to participants’ demographic characteristics. Some of these effects were scent specific—for example, the predicted age of evening elegance target users varied by participants’ age and occupation; the predicted occupation of the daytime professional scent varied with participants’ age and social class. However, two aspects of participants’ social profiles—racial status and social class—systematically affected meaning-making across *all three* fragrances and therefore require additional discussion.

Racial Status

Recall that I asked participants if they thought manufacturers might be targeting users of certain races. Most participants had definite opinions on this matter, but the “racialization” of scents varied by participants’ own self-identified race. For example, participants most often characterized the target user of the daytime professional fragrance as White. That association was strongest among African Americans (100 percent) and Whites (70 percent); fewer Asian Americans (50 percent) and Latinos (40 percent) shared that image.

The settings participants associated with the fragrance also contributed to racialized definitions. Most African American participants (68 percent), for example, spoke of settings

“dominated by Whites,” such as “corporate boardrooms” and “fancy, expensive restaurants.” Most White participants (82 percent), in contrast, spoke of the “anywhere” nature of this scent, saying it was appropriate for “work,” “lounging at home,” or “outdoor fun.” Most participants associated this scent with White target users, but the meaning of Whiteness varied by race. For Black participants, Whiteness was associated with restricted or exclusive settings; for White participants it was associated with open, accessible, and generalizable settings.

Participants racialized the evening elegance scent as well, with such characterizations varying by individuals’ racial identity. For example, 50 percent of both African American and Asian participants identified the evening elegance scent as a Black person’s fragrance. Only 19 percent of White participants made that association; the majority of White participants (55 percent) said the fragrance was appropriate for any race. Latinos were the only group most likely to associate the fragrance specifically with Whites (60 percent). Where would Black women wear such a fragrance? For African Americans, Black target users likely wore this fragrance either to “fancy restaurants” (40 percent) or simply “anywhere” (29 percent). White women most often saw the Black target in a “fancy restaurant” (58 percent). For Asian participants, Black women likely wore this fragrance for “dates” or “sexual situations” (68 percent). Black participants saw target users in broad terms—located in special and routine occasions—whereas White and Asian participants saw Black targets in more narrowly defined social spaces.

Racialization played a role in making sense of the drugstore bargain brand as well. Over 80 percent of African American, Latina, and White participants identified the perfume’s likely target as either a person of their own race or someone of the “any race” category. Asian participants, in contrast, were more restrictive; 50 percent of this group associated the drugstore bargain brand with their own race, and 50 percent associated it with Latinas.

Most important, however, were the differences in how participants characterized target users from their own race versus target users of another race. When participants identified the target user as a person of their own race, 78 percent located the user in settings linked to their own biography—for example, “grandma’s bathroom,” “our kitchen,” “a family gathering,” or “our church.” But when identifying a target user from a race different from one’s own, the target user’s location became more stereotypical. For example, 61 percent of the White participants and 69 percent of the Asian participants who identified the target user as Black or Latina characterized such individuals as “bus drivers,” “cashiers,” “housekeepers,” or “unemployed” and thought the fragrance belonged in “beauty parlors,” “bars,” or “dollar stores.”

Social Class

Self-identified social class also played an interesting role in participants’ assessments of scents. Participants’ class had no significant effect on the class people attached to the manufacturer’s target user. The majority of participants from all social classes associated the evening elegance fragrance with upper- or upper-middle-class users, the daytime professional fragrance with middle-class users, and the drugstore bargain brand with working- or lower-class users. However, self-identified class came into play when participants discussed their ideas about “typical” class behaviors and their association with smell.

For example, nearly all participants thought the evening elegance fragrance was upscale, sophisticated, special, or intimate. Just when and where would we expect to smell such a fragrance? Answers differed by participants’ self-identified class. Upper- and upper-middle-class participants (the manufacturer’s target user) said that target users would likely wear this fragrance in a wide variety of settings, with 70 percent offering several of the following situations: dining out in an elegant restaurant, going to dance clubs or night clubs, a romantic date, or bedroom intimacy. Among middle-class participants, appropriate situations narrowed, with the

majority of participants (53 percent) restricting their answers to two kinds of intimacy: a romantic date or bedroom intimacy. Among working- and lower-class participants, appropriate usage was restricted as well; the largest percentage (48 percent) saw the fragrance as appropriate only to special occasions like a wedding or an anniversary dinner.

In assessing the daytime professional fragrance, the majority of participants associated the fragrance with a young, White, middle-class professional. Participants’ self-identified class did not alter that assessment. However, middle-class participants (those targeted most heavily by the manufacturer) offered the widest variety of appropriate usage sites; 69 percent offered multiple settings (including the workplace, leisure settings, and daily/any occasion wear) as equally appropriate for this scent. Most upper- and upper-middle-class participants (64 percent) saw the fragrance as primarily suitable to leisure settings. The majority of working- and lower-class participants (53 percent) clustered around one appropriate site of use: the office.

Finally, most participants—regardless of their self-identified class—associated the drugstore bargain scent with working- or lower-class users. However, upper-, upper-middle, and middle-class participants showed little consensus as to where the fragrance might appropriately be worn. Here answers ranged from a church or temple to family gatherings to nightclubs, to the halls of a high school, to a hospital, to a kitchen or bathroom, and finally, an old-age home. In contrast, 60 percent of working- or lower-class participants clustered around one expansive answer: daily, all-purpose wear.

Reflections on Race and Class

The race and class variations observed in olfactory sense-making deserve additional comment. There was much consensus regarding the race and class participants associated with fragrances in the study. Most people recognized the cultural codes on which these fragrances were built. However, participants’ own race and class affected their understandings of how

race and class “behave” and the smells associated with race- and class-linked behaviors.

In this last regard, several points are worth noting. First, participants defined smells associated with their own race or class in more expansive and positive ways than those they associated with “others.” For instance, both African American and White participants overwhelmingly identified the daytime professional fragrance as a “White” fragrance. However, White participants offered more expansive uses for the fragrance than did African American participants. Similarly, African American and Asian participants identified the evening elegance fragrance as a “Black” scent. Nevertheless, African American participants offered more varied uses for the fragrance than did Asian participants. This suggests that when we define a smell as “ours,” it conveys a richer, more multidimensional experience than that associated with “them,” thus reinforcing social identities and reifying race and class boundaries.

Second, and not surprisingly, associating a fragrance with a non-dominant or marked race or class invested the scent with negative meanings. However, those negative meanings could be overridden when participants had a more intimate, concrete connection to the fragrance. Several participants characterized the drugstore bargain brand as cheap or anti-septic, but positive meanings prevailed when the fragrance was linked to a cherished, concrete memory like “grandma’s bedroom” or a “family gathering.” Without such connections, the drugstore bargain brand was tied to negative, stereotypical characterizations. This shows that our declarative understandings of racial or class-based sensory codes can be changed by lived experiences contradicting public cultural messages.

DISCUSSION AND CONCLUSIONS

Summary of the Results

Smells carry and convey meaning. As powerfully as a word or an image, smells tell us something about ourselves and the world

around us. To date, we know little about the sociocultural aspects involved in deciphering smells. This article takes a comprehensive view, exploring three dimensions of olfactory sense-making and meaning attribution.

First, I examined the full measure of culture in deciphering smells, investigating our knowledge of public perfume codes as well as the relationships between public codes, nondeclarative culture, and declarative culture, illustrating how each relationship contributes to olfactory sense-making. Second, I explored how cognitive mechanisms guide the use of culture—personal culture in particular. I focused on two cognitive mechanisms, embodied simulation and iterative reprocessing, showing how they contribute to a dynamic interaction between nondeclarative and declarative culture in the construction of meaning. Finally, I examined the ways in which the cultural and cognitive elements of olfactory meaning-making vary by the sociocultural location of the meaning-makers, with such variations informing how people evaluate and classify smells and how they use smells to reify race and class boundaries. Using this three-pronged approach, I offered an empirically detailed picture of how brain, body, and cultured environment simultaneously contribute to our understanding of smells and their role in organizing the social world.

Limitations

Of course, the study is not without limitations. My sample is not representative. Thus, *statistical* generalizability of my findings is beyond reach. However, we can make *theoretical* generalizations about the processes and mechanisms that I describe.

In addition, some self-selection bias may be present here. My recruitment materials clearly stated the task of identifying perfume messages and target markets. Consequently, individuals unfamiliar or uninterested in such tasks may have excluded themselves from the study.

As mentioned earlier, my methodology may also have introduced certain biases to the study. I asked participants to focus on race and class, thus we must acknowledge that

these elements may not be salient in different contexts of fragrance sense-making and meaning attribution. Although the large majority of respondents explicitly told me they regularly associate fragrances with certain races and classes (doing so even when their associations proved non-normative), we must always remain diligent to any potential biases emerging from the research design.

Finally, I used my observations of participants' physical responses as indicative of their authentic reactions to each fragrance. I cannot be completely sure that these reactions were genuine responses, as opposed to enactments presented for the approval of other focus group members. To be sure, most physical reactions appeared automatic and uncontrollable and were immediate to the initial sampling of each scent. Only later did I witness elaborations or corrections that we might consider part of impression management. Still, the potential for participants' use of physical reactions to manage other group members' impressions must be acknowledged.

Contributions to the Sociology of the Senses

This study is restricted to perfumes, but the three-pronged analytic approach I offer here provides a blueprint for examining how people decipher other types of smells. What similarities and differences can we find in how people make sense of and attribute meaning to smells attached to foods or household products, the smell of health versus illness, or the natural versus the synthetic? Are the public codes surrounding these smells as widely shared, or as clearly differentiated and ranked, as those represented by perfumes? Additional empirical work can help us determine how patterns of meaning-making may differ with reference to various olfactory genres.

This article also provides a model for exploring sense-making and meaning attribution in other understudied sensual realms, such as taste or touch. We know that smell, taste, and touch, for example, are controlled by different areas of the brain. Do these

neural differences influence our approach to meaning-making? At present, we can offer only limited answers to that question.

Consider smell versus taste. When we compare my participants' assessments of perfumes versus people's evaluations of things like wine, coffee, or other foodstuffs, we find important differences. Study participants differentiated fragrances based, in part, on their ability to pinpoint specific elements of each perfume's notes and to link those notes to olfactory codes, concrete experiences, and abstract discourse. However, in blind evaluations of wine, coffee, and other foodstuffs, people's sense-making tactics appear less tied to specific elements of the substances they taste. Indeed, as Fine (1995:253) suggests, discussions of food are typically "both general and vague," and the evaluation of food and drink appears much more reliant on surrounding consumption rituals (see, e.g., Almenberg and Dreber 2011; Beckert, Rösse, and Schenk 2017; Lehrer 2011; Richelieu and Korai 2014; Spence, Harrar, and Piqueras-Fizman 2012; Torres Quintão and Zamith Brito 2015). Such differences imply that sense-making and meaning attribution unfold in disparate ways when deciphering various types of sensory data. Additional work is needed to fully document and understand such differences.

Deciphering smells may involve tactics different from those we use to make sense of taste or other sensual data, but the application of olfactory meanings follows patterns similar to those exhibited for other senses. Just as people use sounds to classify, evaluate, or stigmatize class or ethnic groups (see, e.g., Schwarz 2015), or gazes and touches to draw ingroup and outgroup boundaries (see, e.g., Alex 2008; Edwards 1998; Hornik 1992), study participants applied olfactory meanings to typify, positively and negatively evaluate, and bond with or separate from. As we expand research on smells, we must more thoroughly explore other ways in which smells may matter socially, and we must examine the power of smells relative to the contributions of other senses in classification and evaluation.

Contributions to Cultural Analysis

My findings also have implications for several debates swirling through the literature on sense-making and meaning attribution. First, my data support the work of authors who contend that sights and sounds, indeed the environment surrounding us, are both experienced through and mediated by the sensing body. Knowing this, we must continue to explore the role of the socialized body in typification, evaluation, classification, and perception. Doing so will help us empirically address the links between individual, micro-level meaning-making and macro-level cultural dynamics.

Second, my findings show that Lizardo's cultural triangle is helpful in understanding how we make meaning; all forms of culture and the relationships between them must be considered in studies of meaning. However, the cultural triangle, in and of itself, is insufficient for the study of meaning. The triangle must be augmented in important ways. We must, for example, seek to better understand the cognitive mechanisms guiding the use of culture in sense-making and meaning attribution.

The present work offers embodied simulation and iterative reprocessing as two mechanisms that guide the relationship between nondeclarative and declarative culture. I find that these mechanisms foster interdependence and dynamic interaction between the two forms of personal culture. This finding stands in contrast to works that suggest independence or the parallel operation of nondeclarative and declarative culture. Thus, more research is needed to determine the contexts in which interdependence versus independence rule the relationship between elements of personal culture. As Winchester (2016:602) writes: "Arguments about how cognition 'really works' cannot be accurately advanced before close consideration of the social contexts and practices in which actors' cognitions are embedded and through which they develop."

Note too that as we explore the role of cognitive mechanisms in the culture and

cognition of meaning-making, we should also extend our agenda to other legs of the cultural triangle. We must ask if and how cognitive mechanisms guide the relationships between nondeclarative and public culture or between declarative and public culture. Only then will we understand the full measure of culture and cognition in sense-making and meaning attribution.

When using the cultural triangle framework, we must also remain mindful of how minded bodies and worlds fit together (Pitts-Taylor 2016:46). Research on the sociocultural location of meaning-makers is essential here. For example, in exploring race and class differences in olfactory meaning-making, my data show that the greater the sociocultural distance between the intended target of an olfactory message and its receivers, the higher the likelihood that one will decipher the message using abstract semantic knowledge, often in the form of narrow stereotypes. In addition, greater sociocultural distance is associated with less emotional intensity in the meaning-making process. However, as sociocultural distance between intended targets of an olfactory message and those making meaning of the message diminishes, concrete lived experience plays a more powerful role in meaning-making and leads to broader and more emotionally intense interpretations—with some interpretations sufficiently powerful to contradict stereotypical images. Deciphering a fragrance's message is thus highly contingent on one's location in sociocultural space. Knowing this, locating meaning-makers is central to understanding how culture and cognition contribute to sense-making and meaning attribution.

Taken together, my findings suggest new directions for a sociology of the senses and new ways of linking both culture and cognition to sense-making and meaning attribution. Careful empirical inquiry is needed to adequately tell the story of brain, body, and cultural environment and the search for sense and meaning.

APPENDIX

Appendix 1: Reaction Form for Focus Group Participants

You have had a chance to smell perfume sample number 1.

- Below are some words that are often used to describe fragrances. Please check **all** of the words that you feel describe the perfume you have just smelled:

- citrus
- greens
- ferns
- floral
- woody
- spicy

- Below are some additional words that are often used to describe fragrances. Please check **all** of the words that you feel describe the perfume you have just smelled:

- light
- heavy
- simple
- complex
- natural
- synthetic

- Now, please write any additional words that you feel describe the perfume you smelled:

- Using the categories listed below, please describe the characteristics of the target user for whom the manufacturer designed this fragrance:

Age: _____

Race: _____

Occupation: _____

Social Class: Upper _____ Middle _____

Working _____ Poor _____

- Now please write any additional words you feel might describe the

person being targeted by the manufacturer:

- Finally, please write any words that describe the place or situation for which you feel the manufacturer designed this fragrance:

Appendix 2: Demographic Questionnaire

Please take a moment to report the following information:

- My first name is _____

- I was born in (please give year): _____

- My ethnic background is _____

- My gender is _____

- Are you married? _____

- What do you do for a living? _____

- Do you consider yourself to be of any specific religion? _____
If so, which one? _____

- Please check the social class that best describes you:

- Upper
- Upper-Middle
- Middle
- Working
- Poor

- Please check the option that best describes your highest level of education:

- Grammar School Graduate
- Some High School
- High School Graduate
- Some College or Special Training
- College Graduate
- Some Graduate School
- Graduate Degree

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Notes

1. Notes do not divulge the perfume's actual ingredients. Typically, perfume formulae are protected as trade secrets; the FDA does not require detailed package listings of perfume ingredients (see Food and Drug Administration 2017).
2. Oils and herbs have been used to perfume bodies in rituals for thousands of years. Such concoctions, however, were confined to the privileged class or to special ritualistic occasions. Perfumes were not part of a mass market.
3. Perfume notes combine to form a complex, three-part olfactory structure. "Top notes" initiate the olfactory experience; their impact is fleeting, lasting less than a minute. A fragrance's "heart notes" form our general impression of the fragrance; their impact lasts for several minutes. "Base notes" complete the fragrance's structure, giving the fragrance its staying power; they can be detected for lengthy periods of time.
4. I also interviewed five salespeople working at major department stores to determine the information provided at the purchase point. Salespeople's descriptions varied little from manufacturers' descriptions. Indeed, salespeople rely heavily on manufacturers' directives.

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