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The structure of cultural experience

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ABSTRACT

The theories of William James and John Dewey regarding the nature of experience suggest that there is an aspect of the organization of culture that sociologists have not yet studied formally, namely the structuring of sensory experience. We propose a way of trying to measure respondents' experience of "textural" music, as opposed to their preferences, evaluative judgments, or associations. We employ a novel data-gathering approach as part of 61 in-depth interviews, and then analyze the dimensionality of the distribution of reported experiences. We find three dimensions, all of which seem to touch upon fundamentally meaningful binaries of embodied experience.

Introduction

> …language creates for us a mythology, from which, of course, in the use of language we can never wholly set ourselves free without becoming pedantically precise, but against the influence of which on the moulding of our thoughts we ought to be carefully on our guard.
>
> - Rudolf Hermann Lotze (1885:603)

For a discipline that has enjoyed so many revitalization movements, the sociology of culture seems to have a rather modest output/input ratio. Specifically, we have put in a great deal of time, care, and thought into our theories and research, but we have relatively few robust findings. This might be because our subject matter is in perpetual flux—the findings of one year are not binding on the people of the next!—but it also may be because of the difficulty of clearly identifying our subject matter in ways that all researchers can agree on. As a result, our field has experienced a strong push for more rigorous methodological applications, for which the journal *Poetics* served as the vehicle. One branch of this involved using new data sets, such as that on Public Participation in the Arts, to be able to make stronger inferential claims (DiMaggio & Mukhtar, 2004; Robinson, 1985; van Rees & van Eijck, 2003). A second branch focused on the use of coding and on the construction of databases (Griswold 1987), so as to apply mainstream sociological methods of explaining variation to arguments about culture. Finally, a third direction involved creative data-reduction and descriptive techniques, which have proven extremely exciting, yet potentially quite fragile (Biernacki, 2012). A number of sociologists have attempted to make their analyses compatible with current theories of cognition, but they have tended to concentrate on the single issue of dual processing (Villa-Henninger, 2015; Leschziner et al., 2019), and have been able to assemble very little direct evidence for the relevance of this theory (Moore [2017] and Miles, Charron-Chénier and Schleifer [2019] are notable exceptions). In the sociology of culture we have, in other words, done quite well with theories, and have many creative models, but almost no measurements.

In case this ideal-typical distinction between measurements, models, and theories is not clear, think about the development of Western understandings of the cosmos. Tycho Brahe excelled in producing much more accurate measurements of the positions of the stars and

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planets, but his *model* for the cosmos was not considered to be an important breakthrough. And he did not measure the heavens, nor did he do heavenly measurements. Rather, at distinctly measured *times*, he measured the *position* of stars and planets. His one time assistant Johannes Kepler used these observations to develop his own *model* for the solar system, which then proved vital in Newton's development of *theory* of motion, that is, the integration of heavenly and terrestrial physics. (Note the order: *first* measurement, *then* models, and *then* theories.) And while the astronomers were doing this, of course, regular people still looked up at the patterns they saw among the stars, an activity once done for the practical purpose of determining planting and migration timing among non-literate peoples, now only done for the sheer joy of spinning stories (and still sometimes for navigation when instruments failed).

To return to the sociology of culture: despite the enthusiasm for a project of measuring culture really initiated by John Mohr (1998), whose work is the inspiration for our own, since then, almost no one tried to push forward with new techniques of measuring; instead, they preferred to try new ways of perhaps modeling, but often merely visualizing, traditional forms of data.[1] We do not deny that there have been new inroads in measurement. First, the addition of questions specifically about cultural consumption on probability sample surveys is by no means an insignificant step. Nor are collaborations with psychologists to employ new forms of measurement that may have implications for issues of culture. But we see the opportunity for substantial advance in the core project that inspired the sociology of culture in the development of new forms of measurement of specifically cultural phenomena. In some cases, measuring will involve taking our theories seriously enough to devote a great deal of research time to gathering precise data on key issues (similar to the focus of the Detroit Area Survey on neighborhood attitudes, given the importance of the precise distribution of preferences for Schelling, [1978] type models). An example here is seen in Vanderbrocke's (2016) use of detailed probing of understandings of body types. In other cases, measuring will involve making use of the capacity of computer-assisted interviewing to bring together types of data (for example, subjective perceptions/sorts and response times) to be able to test theoretical interpretations (e.g., Moore, 2017).

In this paper, we lay out a new data gathering protocol to assess the qualitative nature of cultural experience. We do this for the specific case of the sensory experience[2] of one type of music, that which is textural but not (like a movie soundtrack) designed to accompany visual representations. We hope to then understand the structure (if any) of this specific form of cultural *experience*. We begin by laying out the context for such a search for cultural structures, and then explaining how we understand the nature of experience. We discuss the complexities and paradoxes of trying to use verbal reports to assess experience, and then lay out our own procedures. After discussing the particular data collected, we examine the structure of experience of music that we uncovered among our respondents. We close by considering other ways of pursuing the project of measuring cultural experience.

The structure of cultural experience

The search for structures

We think that the single most exciting theory in the realm of studies of culture is the structuralism of Claude Lévi-Strauss (e.g., 1975 [1964]), and his attempt to chart the underlying structure of most world cultures via a set of basic elements of myths, connected by sets of mathematical transformations. The implausible nature of this project was obvious even to him, and it seemed even less plausible to attempt to use the same techniques on Western societies in which there seemed to be highly differentiated cultural dimensions. Yet for all that, there have been recurrent efforts to begin to chart the general structure of culture in terms of those sorts of binaries that Lévi-Strauss saw as the core structures of mythic thought. Indeed, the positions on the proper approach to culture taken by Bourdieu (1984 [1979]) and Alexander (2003)—seemingly polar opposites, one emphasizing connection to material practice and the other insisting on the autonomy of culture—both share this fundamental understanding.

The great success of this cultural analysis may not be apparent, because the core was widely understood to everyone before sociologists came on the scene. Bourdieu, that is, finds class-based patterns of choices of cultural goods. But if Frenchmen did not already know, at least implicitly if not explicitly, that light:heavy :: clean:dirty :: haute bourgeois:petit bourgeois, his findings would be uninterpretable. That does not mean that we are not interested in determining whether there is indeed independent evidence for such structures in cultural data (see, most notably, Kozlowski, Taddy & Evans, 2019). But there have been other types of investigations that yield insights into the underlying structure of culture, insights that are not as accessible to folk consciousness. In particular, Charles Osgood carried out an inductive exploration of the judgments of objects in Western culture and produced an underlying spatial structure of qualities. This involved the notion of a semantic differential, a way in which subjects sort objects, whether they explicitly rate them, or simply put them together in different piles of likeness. His great finding was that three dimensions explained a huge amount of the variance. These are known as the EPA dimensions: *evaluation* (good as opposed to bad), *potency* (strong as opposed to weak), and *activity* (as opposed to passivity) (see Osgood, Succi & Tannenbaum, 1957). For example a *white rose bud* sits in this space quite near *gentleness* and *sleep*.

This approach and the underlying theory have proven extremely generative and robust. It serves to organize the general cultural space of the attitudes towards objects (understood loosely)—and what sorts of associational meanings these objects have. The reason that a *white rose bud* sits in this three dimensional space near *gentleness* and *sleep* is not simply that all three are very positive, very weak, and extremely passive,

[1] If this statement be suspected to be an exaggeration, open can consult the valiant attempt of nine authors to survey and synthesize the state of measuring culture in sociology. While they are able to discuss a fair amount of measurement, and a large amount of the sociology of culture, these are almost totally disjoint sets (in the few cases where sociologists *measure* as opposed to *count*, they tend to focus on the usual suspects—consumption, attitudes, and so on) (Mohr, 2020). The most important initial example of such measurement—the attempt to get at specified qualities of specifically cultural objects—is Cerulo (1988, 1995).

[2] In this paper, we consistently use the word *experience* to mean sensory experience.

but also that there is an overlap in one aspect of their *meanings*. Despite the radical difference in denotation, they have similar connotations.

Similar attempts to model the dimensionality of our responses to objects have been made by psychologists who are interested not in our judgments of the objects, but in the affective space they induce. Most notably, Russell (1980) argued that two dimensions—*arousal* (active as opposed to sleepy) and *valence* (positive as opposed to negative)—capture the "cognitive conceptual structure" of emotions (1177). Others (e.g., Schimmack & Grob, 2000) push for a three dimensional model, adding a *tension arousal* (tense as opposed to relaxed) dimension to Russell's two. More recently, this three-dimensional model has been applied to aural stimuli like music and the human voice to explore how variations in sound yield differences in judgments, and how different sorts of sounds "code for" different "affective message" (Ilie & Thompson, 2006: 326). The most recent attempt is Cowen, Fang, Sauter and Keltner (2020) cross-national attempt to map out the structure of music experience by focusing on the feelings that music triggers in listeners. However, as we explain in the next section, our own interest lies in *experience*, and although we often use affect, feeling, emotion, and experience interchangeably in everyday talk, the notion of *experience* as we mean it refers to a different concept.[3] This notion points to the subjective undergoing of what Brattico, Brattico and Vuust (2017) term "global sensory qualities," or "Gestalt percepts" that emerge from the combination of local sonic elements (4–5).

We seek to build upon this sort of investigation, to see if there is a similar structuring not in the *evaluations of abstracted objects*, but in the immediate texture of cultural experience. As this notion of "experience" is not necessarily familiar to sociologists of culture, we begin by laying out the theoretical orientation that drives our research.

The nature of experience

Since Simmel (1969[1908]), there has been the notion that we could carry out a "sociology of the senses" (the roots are in Marx [1844] 1978). It has, however, proven difficult to do this in ways that are both specifically sociological (as opposed to psychological) and that use systematic data-gathering methodologies. Recently, however, we have seen renewed interest in attempting to get a closer sociological grasp on the ways in which our sensory engagement with the world is socially structured (see, for one Bosman, Spronk & Kuipers, 2019). Most notably, Cerulo (2018) examines respondents' associations of the social location of different perfume scents, finding them to be non-arbitrary and in accord with manufacturers' own understandings. And this is the core problematic that has guided most sociological investigations (for example, those in the tradition of Bourdieu)—to investigate the mapping between the sensory and the social. This will probably rightly continue to be the central theme for the sociology of culture, but, in contrast to the Lévi-Straussian program, it answers the question as to the *logic* of the structure of culture by fiat: as we map culture onto social structure, the structure of culture (if there is indeed any) is necessarily social structure. That is, the organization of culture, if there is any, comes specifically from the pattern of co-holding or co-experiencing according to the social categories used to partition respondents or targets. Any type of relation between cultural elements that does not align with such social divisions cannot be uncovered.

We propose to investigate if there is a specifically cultural organization of sensory experience, and we put the emphasis on experience. Here we are influenced by the pragmatists, most importantly, John Dewey and William James, and see *experience* as a process amenable to study that is different from the *evaluations* and *associations* that are more commonly studied in the sociology of culture. By *experience,* we point to a phenomenological level prior to the division of inner *feeling* (understood as a reflective awareness of the organism's own state) and *perception* (which involves an intentional relation to an object) (Dewey [1934] 2005: 22). This is also distinct from *sensation,* which refers to a consciously accessible bodily state (for the distinction between perception and sensation, see Freeman, 2000: 65). For example, consider the hapless art gallery visitor suddenly confronting some demented poseur's installation of a severed and rotten dog head. The immediate experience may be one that fuses somatic (inner) and perceptual (outer) processes. It then may be divided into the inner feeling (*I* am nauseated) and the outer perception (*that* is disgusting).

We are particularly interested in those forms of experience that are intentional—that refer to things or events outside the body, for it is these that are sociologically relevant, as certain objects or events induce patterned dispersions of experience in different sorts of persons (Simmel, 1969 [1921]). For example, some other individuals may find the exhibit fascinating (in the sense of drawing them in), while those with more experience with the taxidermic avant-garde may have a much more muted (and perhaps more top-down) experience in which they note the *cheesiness* and poor workmanship ("clearly derivative of Mark Pauline's work").

The nature of this experience, as the example illustrates, is primordially *qualitative* in nature (James, 1977 [1905]: 188; also [1907] 1995:85; James [1890] 1950: 38; Dewey [1905] 1998; [1929] 1958; [1930] 1998; [1934] 2005: 270). We do not experience, say, a flower in the abstract, but always *a red rose* or *a white daisy*. The qualities *red* and *white* are not superimposed on "rose" and "daisy," but rather the latter are experienced as *being* red or white; the *red*-ness and *white*-ness are not dissociable from the experience of the rose and daisy, respectively. These qualities are not restricted to those that are commonly understood under the rubric of primary (e.g., extension) and secondary (e.g., color) and so on—those that a machine would have no trouble identifying—but also include those that blend affective and evaluative meanings. It is important to emphasize that these experiences of quality are not necessarily any less immediate than those that are seemingly more objective. This is true both in terms of temporal priority (our viewer probably saw the disgustingness of the exhibit before she noted the texture) and cognitive processing (disgust reactions seem to be extremely basic and evolutionarily primitive, though see Barrett & Satpute [2019] for a recent caution). The fact that there can be additional, mediated forms of meaning that come on top of the experience (such as, this is not only *disgusting,* but also a sign of *artistic decadence*!) does not erase the important distinction

[3] We have found an unfortunate and pervasive conflation of terms in the social psychological literature on music and emotions (but see Massumi [1995] for a notable exception, one that makes what we think is a convincing case for regarding affect and emotion as independent concepts).

between these types of meaning.[4] The latter sorts of evaluations involve some sort of "working-up" of the qualitative experience to support judgments that employ concepts that are pre-constructed for their suitability for linguistic expression (e.g., "an attempt to infuse minimalism, a genre tending towards the celebration of naiveté, with an adult pathos").

Further, the fact that the qualitative nature of experience is *primary* in this sense does not mean that it is *instantaneous*. As Dewey (2005 [1934]) in particular emphasized, often to really be able to focus on what is primordial in our experience, we must attend to it carefully. Indeed, our own data confirm this. The reason we are justified in seeing qualitative experience as primary is that no experience that reaches consciousness is *not* qualitative in this sense, and *other* forms of predication are rooted in and built on top of our experience of qualities.

These qualities are not "fixed properties" but relations (Dewey [1930] 1998:1; [1929] 1958:259–60); more precisely, they are "*potentials* for experience." Although qualities exist in objects, they are only "actualized," or sensed, by actors in experience (Martin, 2011: 186). The disgustingness of the dog's head derives from its capacity to evoke disgust in a viewer. The necessary circularity here is the virtuous circle that comes in all definitions of potentials. Understanding quality as a potential for inducing experience implies—and Dewey accepted this implication—that experience occurs in a fusion before the separation of subject and object: "I start and am flustered by a noise heard. Empirically, that noise is fearsome; it *really* is, not merely phenomenally or subjectively so. That is *what* it is experienced as being" (Dewey [1905] 1998:116; see also James 1977 [1905]: 188–9). There is therefore no necessary temporal gap between raw sensory input and an actor's perception of a thing as a particular object. Instead, meaning is contained in an organism's response, and objects are what they are experienced as (this does not imply knowledge of objects is fixed and cannot change; see Dewey [1905] 1998:115–6). This runs contrary to our folk theory of perception, which posits a single, unidirectional flow of information *from* the outside, *through* the senses, and then *into* the brain, where forms of division (a grid of perception) that, whether personal or social, are arbitrary in scientific terms, are then layered on top. Instead, the pragmatist claim, which we consider to be supported by current neurology, is that most fundamental biological interactions with things around us are intertwined with their meaning.[5]

It is the structure of this sort of experience that we propose to investigate, and here, for the case of musical experience. While an actual measure of experience is (at least as of now) technologically impossible, we wish to come as close as we can, for reasons we outline below. It might seem sufficient to attempt to study not the undifferentiated experience, but the judgments of the object made by subjects. Since a severed dog's head *is* disgusting, and it was the disgustingness of the exhibit that led to the feeling of disgust, we lose no information by asking the respondent "do you think that this exhibit is disgusting?" But, as we go on to argue, it is easy to confuse respondents' reflections on their experiences, and, even more problematically, their defenses of their expressed reflections, with the experiences themselves.

That which cannot be said can be pointed to

In the past, discussions of the problematic relationship between reports of primary experience and linguistic patterns have been derailed by the debate over what has been termed the "Sapir-Whorf" hypothesis—that the structures of a language reach down into the constitution of the objects in our subjective worlds. While many of the claims initially used to support this theory were wrong or illogical (Rosch 1978; Bloch 1991) and frequently conflated higher-order abstractions with objects of experience, the fact that we tend to have words for objects that are important to us, and that much of experience is *recognition*, means that there will undoubtedly be cultural variability in experience that tracks linguistic differences, even if the language is not the direct cause. One need not deny this to argue that there can be qualities of experience for which we lack conventional descriptors.

This leads to a problem: we use language to communicate experience, but there will be at the very least some sort of slippage between the two. Even worse, the very fact that language is a medium of communication *par excellence* can lead to serious distortions. As Zerubavel (1997:16) elegantly says, the purpose of language is to "'typify' the world and thereby transform every novel experience into a somewhat familiar one" for the sake of social communication and coordination. As such, it is a double-edged sword: words enable communication because they are "impersonal" and "downplay" experience's "uniqueness." Although this is ideal for everyday interaction, it makes measuring differences in experience difficult; its reliance on convention enables users to ultimately "bypass [their] senses" (Ibid: 7).

Perhaps the most problematic aspect of using language to communicate experience comes from a shift in the social relationship of interviewing once a subject feels that she has made a claim. Indeed, one of the reasons that, in this paper, we want to get as close as we can to experience (that is, prior to the distinction between internal feeling and outer perception) is that perception involves an implicit judgment (e.g., The reason *I am nauseated* is that *That is disgusting*) which, once made, is likely to lead subjects (at least in the modern west) less towards giving as accurate and detailed a description of their experience as possible and more to *defending* the uttered proposition. Thus studies of experience must be crafted to avoid leading respondents to shift into a mode of justifying their verbalized claims, as opposed to fleshing out the contours of their experience. But even when the register of "accounting" is avoided, descriptions of experience can be deeply problematic.

In the most extreme cases, people may rely on idiomatic phrases—or even hackneyed clichés—that succeed in conveying some sorts of meaning but lack the precision needed to assess the qualitative nature of experience. It is for this reason that, as James ([1890] 1950: 12) said, language at times "work[s] against our perception of truth." Thus some researchers (e.g., Herbert 2009) who have used diary and

4. In the case of music, Pratt (1961), drawing on Meyer's work, makes the useful distinction between "embodied meaning, which is iconic with the sensory-perceptual material," and "designative meaning, which refers to something beyond the material given in perception" (84).

5. This is demonstrated most directly with literature on attention, but there are intriguing hints that the same is true for the senses. Kay and Laurent (1999) demonstrated that rat odor response is modulated by a rat's previous experience with odors; olfactory cell response is not—as has been traditionally assumed—constant, but can be modified by altering the meaning odors have for rats. Also see Katz (1999: 316-7) and Damasio (1999:147).

interview data to explore specifically musical experience find that respondents often evoke figures of speech like metaphor and idiom to talk about what they hear. For this reason, Bloch recommends designing research protocols that discourage the use of "stylistic devices" and encourage descriptions "of the way things look, sound, feel, smell, taste and so on"—descriptions, in short, that draw "on the realm of bodily experience" (1991: 193).

In one approach, Gabrielsson and Wik (2003) adopt a different approach to accessing music experience, asking respondents to engage in free descriptions of "strong experiences related to music," or SEM. From these descriptions, as well as responses on a questionnaire tapping elements of music experience, they develop an extensive, catch-all descriptive system of SEM. However, there is evidence that as people reflect upon experience, they lose many of the actual qualities of that experience. What they report when asked later, in other words, differs from what they would have said at the time of the experience.[6] Indeed, it is not at all easy to dismiss the concern that when we ask research subjects to answer questions about their experience, the very process of translating the experience into linguistic structures changes the memory of the experience itself, as those who invoke schemas (Bartlett 1995 [1932]) are likely to remember the parts of experience consistent with them and forget the others (Loftus and Davis, 2006). For this reason, a number of social scientists have turned to various forms of "experience sampling" (Csikszentmihalyi & Graef, 1980; for an example, see Savin-Williams & Demo, 1983) in which respondents are paged at certain times to report their current experiential state. Such methods have, quite understandably, been oriented to the assessment of inner feeling ("I am happy"), current activity ("I am talking with friends"), or both. It would make little sense to have respondents randomly queried on the qualities of the objects around them ("quick, what is the nature of the object four feet ahead of you and two feet to the right?"). An examination of the structure of cultural experience will require presenting subjects with examples to experience.

In sum, there are serious hurdles to using linguistic communication to assess others' experience, but there are also few alternatives. (One can tap very general brain localization of responses to various stimuli,[7] and somatic reactions such as pupil dilation, skin reactivity and so on). For this reason, our proposal is to try to use words that will have a *non-random mapping to aspects of experience*, yet which neither are empty clichés, nor evoke full-fledged schemata, or are likely to set off other chains of association. These are, of course, only the first steps in this direction. But they follow from the logic of the nature of experience as we have derived it from Dewey and others.

We develop a research protocol for the assessment of one type of cultural experience: musical experience. Further, we only examine one type of music—short excerpts of alternative/popular music, each with a relatively constant texture or "feel." We only use short excerpts that lack recognizable lyrics or representational content (e.g., the sound of an airplane), and that do not make use of well-established tropes designed to be "read" (e.g., strong minor key denoting sadness). We do not expect the particularities of our approach to make sense for other forms of culture, but it is an open question how transferable our approach may be. We go on to lay out our procedures, and then demonstrate some face plausibility to the results.

Data and methods

The selection of predicates

The difficulty that we have been struggling with—how to use language to capture experience without the linguistic structure overwriting the primary experience—has a formal similarity to one of the fundamental questions in esthetic theory—how to understand the nature of esthetic predications (such as "the music is *heavy*").[8] Various attempts to explain such predication as metaphorical all have serious weaknesses, and we are persuaded by Scruton's (1998 [1974]) understanding, as well as by Hevner's (1936) work on composition classification. Scruton argues that esthetic predication does not (as some argued) employ a parallel, specialized lexicon, nor does it invoke metaphor. Instead, it makes use of the connotations of terms used in everyday life, but attempts to apply these in a different context, without necessarily having the restricted range of a metaphor (where we can identify what in the tenor will be transported to the subject of the prediction via the vehicle). We believe that the same process can be used to grasp esthetic experience, by choosing precisely those potential predicates that can *only* be the sort of esthetic predication described by Scruton.

The logic above suggests an interviewing protocol in which we guide respondents to make these sorts of esthetic predications of experience. Drawing on Hevner's (1936) work, in which respondents listened to classical music selections and chose adjectives from a list that matched the emotion (e.g., *melancholic, joyful*) conveyed, we began by freely generating a list of commonly used and easily graspable terms and their opposites. We then continued to adjust the list in pretests, adding terms that (1) are commonly understood, used, and a part of an English-speaking adult's lexicon, (2) are not typically applied to music, (3) do not refer to emotion (*cheerful, morose*), evaluation

6. . This has been most exhaustively investigated in studies of the psychology of memory insofar as it is relevant for interpreting witness testimony (see Loftus 1996, Yarmey 1979).

7. It is not currently considered acceptable to insert electrodes into the brains of human subjects only for research purposes. However, there have been a few experiments conducted on patients who have such invasive equipment installed for other reasons; unfortunately, the time of these patients is in great demand, and they are unlikely to be accessible to cultural sociologists in the foreseeable future.

8. This might often be called esthetic *judgment*, but to avoid confusing this type of primordial experience ("it is disgusting") with an *evaluative* judgment requiring a *decision* that can be *justified* ("it is a cheeky response to Ivan Albright") we use the technical term *predication* instead.

(e.g., *funny, lame),* or technical properties of sound (e.g., *high* which can refer to pitch), and (4) refer to a concrete experience. Thus we tried to choose words respondents could use to creatively describe a quality of their experience, as opposed to asking them to think metaphorically via a serial chain of reasoning. Accordingly, we included words referring to tactile, visual, auditory, proprioceptive, and taste qualities.[9] As we conducted pretest interviews, we eliminated terms that (1) were never used, (2) when used, did not have a concrete experiential referent, (3) had a *literal* experiential reference, or (4) could be explained by recourse to *other* terms. Thus if we asked a respondent why she labeled a sound as *watery* and she said "because it sounded like water," we determined that this was not a helpful term; if we asked her why she labeled a sound as *slimy* and she answered that it was such because it was *wet* and *sticky*, but when asked why the sound was *sticky*, could only insist that it *sounded sticky*, we would use *sticky* but not *slimy*.[10] The list of adjectives is presented in Appendix A, which also indicates which adjectives were presented to which respondents.

The samples

We then provided a restricted range of musical samples to respondents, asking them to report on the music. In all cases, we chose music in which we could take out a small section that had a relatively continuous feeling to it, as opposed to something that only made sense as a part in a larger whole. We also chose music that was unlikely to be familiar to most respondents. Finally, we wanted music that would have "low barriers to entry"—music that all respondents would feel confident that they could report on, unlike, for example, a very complex composition, say, by a serialist composer of the mid-20th century, which many respondents might refuse to engage with at all. Moreover, because pilot research indicated that stimuli with lyrics encourage the selection of adjectives descriptive of lyrical content, no stimuli with discernible lyrics were used (see Appendix, Table B for a list of samples referred to here).

Because it was crucial that respondents not recognize the songs or artists from which the stimuli were excerpted, a variety of non-mainstream music deemed interesting yet accessible by the authors were selected. We had a bank of potential samples prepared so that we were able to avoid presenting music from genres respondents reported having expertise in to reduce extra-musical association.

The respondents

Sixty-one interviews ($M = 34$; $F = 27$; age range: 22–68), ranging from 80 to 120 min in length, were conducted over 14 months.[11] All were audio recorded and transcribed. Previous work connected us to members of various local music communities, and we sampled from these communities and relied on key informants for referrals beyond. Slightly over half of respondents are musicians, producers, radio DJs, or sound engineers. The rest do not have extensive music expertise, but consider themselves fans. The majority of the respondents live in a large midwestern city (but come from across the U.S.); 13 are originally from countries outside of the U.S., including India, Russia, Israel, and New Zealand. The majority are white, identify as heterosexual, and hold a bachelor's degree or higher. These were, we should emphasize, highly motivated respondents—they found the task interesting, and worked hard at using the protocol to best communicate their experiences.[12]

The interview set up

First, interviewees were asked about their esthetic biographies. Specifically, we asked whether they were musicians, what music they grew up listening to, and what their current likes and dislikes in terms of music, whether by artist, genre, or mode of listening, were. Next, we presented them with 40 (in the earlier interviews, somewhat more[13]) randomly distributed white index cards, each with an adjective, typed in black ink, on it (see Appendix A for the list of adjectives, and Appendix C for an example of the physical set up during an interview).

After presenting the list, we played respondents 12 to 15 sound clips, (henceforth, *stimuli* or *samples*), each 12-25s long from a sample of 25. To keep sound quality constant, we played all selections from a Macbook Pro. For each sample, respondents were asked to select five adjectives that best described the sound and to explain why the terms applied. When necessary, we provided prompts to facilitate response, clarify ambiguous word use, and flesh out vague remarks (e.g., "Where does the [*curvy*]-ness come from?"; "What makes the

9. This data gathering protocol was first developed to attempt to map between different sensory modalities: if this sound were a color/texture/image/smell/taste, what would it be? We found that respondents who took the task seriously could not both stay within our strictures and explain their experience (one sound might be *both* white *and* blue, while another would have no color at all). We then examined the transcripts of pilot tests to discern what the adjectives that respondents thought most illuminating had in common, and it was the capacity to evoke an experience in an indirect way—just the understanding of esthetic predication put forward by Scruton.

10. We confess to having first included *slimy* because it is Sartre's (1956) key example of qualitative experience in *Being and Nothingness* (*le visqueux*). Sartre, in *Nausea*, had proposed a diary approach to changes in qualitative experience, which we take quite seriously. Although *Slimy* did not appear useful for respondents, its close cognate *viscous* did, and that is what was included in the interviews used in the analyses below.

11. Of those, 14 involved a different protocol in which terms were sorted into groups from which respondents could select only one. Only adjective selection data from the ungrouped selection task are used in the formal analyses.

12. We ourselves have found completing the protocol quite challenging, as mapping the experience onto the limited set of evocative adjectives requires time and attentive listening. Just as Dewey ([1905] 1998; 2005 [1934]) argued, getting at experience is the immediate experience of the mediate, and it requires effort and attention to know what one's primary experience is.

13. As Appendix A makes clear, the first interviews we used had 47 adjectives, which we then reduced to 45, and finally 40. Our analyses apply weights to correct for the decreased tendency of adjectives to be chosen when more are given.

sound [*rubbery*]?").[14] Thus respondents did not simply pick the adjectives, but used these as part of a lengthier discussion of the nature of their experience. In pre-tests, when multiple respondents evoked the same quality that we had not seen fit to ask about, we incorporated that in future tests.

Validity

Given the unusual nature of the task—forcing respondents to choose from esthetic predicates against conventions for describing music—our first concern is the validity of the resulting data. It is not the case that there is uniformity in the choice of adjectives for each piece of music. Could the respondents be answering near-randomly? We looked carefully at the interviews, often focusing on cases of disagreement. Consider these actual responses from two subjects to the same sample. The first (female) calls it *intrusive, flat, white, dry*, and *fuzzy*, while the second (male) calls it *feminine, round, blue, warm*, and *juicy*. These seem so different that it would be reasonable to wonder whether the responses have any relation to the experienced sample at all. But their psycho-logic becomes apparent when we put them in the context of their more in-depth explanations of their experience. In this case, the woman says that she hears the sound as

> monotonous, similar to when you hit a metallic object with a hammer. Like, a workplace-construction-site monotony. I think it comes from the keyboard, how it's holding the same key, no variation. And then there's the drum going on in the background—it's not looping, there's no circular logic to it, so it's not repetitive. It's just going on in a *flat* way– a *flat* linearity, and you're being dragged. Everything is *extended* and slow. So in that way, it's *intrusive*. It's not exactly depressed but…well, it's very low and *fuzzy*. The keyboard creates a haze, and it's hard to see beyond that.[15]

The man heard it very differently:

> It's simple and cheerful: hand claps and an organ. The organ gives it a female energy, almost a celebratory quality. It's how it's played, with the *extended* notes– they're not being attacked, and it's an inviting, encapsulating sound, like holding onto you. Almost maternal. We picture the sound coming out of a dark space—*velvety* and appealing to touch. It also has a *juiciness* – joyful, full of life, round. Like a fruit you want to take a bite of. But *crisp* [in texture]– not like a pear that's mushy when it's *ripe*. So, more like an apple.

We ourselves can hear the music in question (ten seconds of "Breaker" by the band Low[16]) in both these ways, although we expect that the first experience is closer to the intention of the creators (the song is about killing). But the coherence of the reports, and the facility with which the respondents are able to use the offered adjectives to ascribe a unitary experience, confirms that there is no immediate reason to doubt the validity of the reports. Calling a sound *ripe* or *flat* is a way to communicate subtle aspects of sonic experience hitherto not considered measurable. With these data, we want to examine the *structure* of possible experience.

Analysis

Our goal is to make the first pass at a structural analysis of sonic experience: can we give a descriptive overview of the regularities in experience? If we find an interpretable structure, this suggests the validity of our measures, and gives confidence in the project of attempting to measure cultural experience. Given this goal, we employ multidimensional scaling [MDS] (Kruskal & Wish, 1978) to position the adjectives in a space whereby adjectives are close if they tend to be used to describe the same samples. While we present our main results from nonmetric MDS, we also replicate with metric MDS analyses for reasons explained shortly. Because non-metric MDS does not impose the constraint that distances in the resulting space should be a linear function of observed distances, given any algorithm and target statistic, it should never fit worse, and usually better, than metric multidimensional scaling. To analyze the data collected, we first eliminated the first 14 interviews, as these were used as pilot studies to remove some of the offered adjectives that were not useful to respondents, and replace them with others. Thus our N here is 47. There were some changes made to the adjectives offered after this point (see Appendix A), and we here only analyze the adjectives that were presented to at least 30 of the 47 respondents.

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14. A reasonable concern would be that perhaps respondents, used to having to explain their choices, shift out of using the adjectives to describe their primary experience and instead, start using them to make claims they know they will be able to justify in talk. We believe that this did not happen, in part because there seemed to be no bias towards consistency (for example, someone might use *curvy* first to denote the experience of something that was round, and then later, to describe sound that changed course), or any change to more formulaic/stereotyped answers as individual interviews progressed. This of course means that our results lack precision: if the same respondent used *viscous* to describe a sound that flowed like hot oil, and then later, to describe one that moved like honey, the overall position of *viscous* must be a compromise between all these possible uses.

15. Italics are used to (1) indicate terms used in our formal data gathering; (2) reproduce the emphasis put on terms by the speaker; (3) draw attention to an interesting agreement within these antithetical reports.

16. Note that the first listener hears the sound *as low*, and that both describe the sound as *extended*, although this was not an offered adjective.

If our data then are of the form **X** where $x_{ijk} = 1$ if person i said that sample j was adjective k, we then create **Y** where $y_{jk} = \sum_i x_{ijk}$ containing the number of times that sample j was named as being adjective k.[17] From this, we construct the distance matrix **D** containing the Euclidian distance between any two adjectives,

$$d_{kg} = 1 + \sqrt{\sum_j \left(y_{jk} - y_{jg}\right)^2}$$

where the 1 is added to avoid zero distances.

Now because of the changes to the interviewing protocol made at a few points during the data gathering, not all items were at the same risk of being chosen, and not all pairs of items had the same risk of being co-chosen. We therefore used a weighted version of metric multidimensional scaling (using `wcmdscale` in the `vegan` package for R) as a check on our main unweighted nonmetric analysis (using the classic `isoMDS` from the `MASS` package). Unfortunately, `wcmdscale` only allows the weighting of *points*, as opposed to *dyads*; however, this would not be a problem if the chance of two adjectives being given to the same subject are about what would be expected under the chance allocation of those adjectives based on their overall frequency. And indeed, the correlation between the true dyadic observed weights and those that we construct by considering the co-allocation of adjectives to the same subject is $r = 0.981$ (see the Figure in the Appendix D). Thus we have no reason to believe that our weighting procedure is insufficient. For our main discussion, we present the results from the unweighted analyses, simply because they are easier to read without carrying out ad-hoc adjustments of the position of labels to increase legibility. However, we present the results from the weighted analyses, and those that construct distances without collapsing over individuals (see previous note), in Appendix E. In no cases would the conclusions change if we had used a different procedure.

Results

Dimensionality

How many dimensions are necessary to categorize the underlying structure of experience? Fig. 1 shows the decreased stress as we change the number of dimensions.[18] It appears that a three-dimensional fit is a good one, and we here use three dimensions.[19] (In

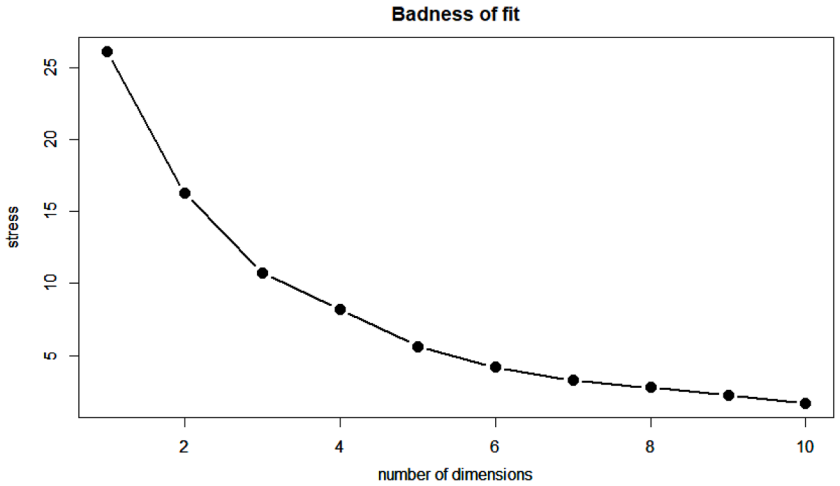


Fig. 1. Scree Plot.

17. It is of course possible that there is a similarity of culture structure in what adjectives "go together," but that the subjects hear the sounds quite differently. In this case, we might want to construct our distance matrix not based on the samples, but on the individual-sample basis (that is, how many times do individuals use the adjectives to describe the same sample?). If the results were different, we might suspect that we were capturing not something that had to do with the experience of the sample, but with verbal structures. We therefore replicated this way, and found the same basic three dimensions. The plots were more uneven and difficult to read than our main analyses, and so we present these only in the Appendix E.

18. The stress, the conventional measure of badness-of-fit in multidimensional scaling, is defined as follows:

$$Stress = \sqrt{\frac{\sum_i \sum_{j \neq 1} [f(d_{ij}) - \widehat{d}_{ij}]^2}{\sum_i \sum_{j \neq 1} d_{ij}^2}}$$ where "d-hat"

indicates the estimated distance as opposed to the observed distance, and f is a monotonic function chosen to minimize the total stress.

19. The stress is considered a good measure so long as the dimensionality is less than the number of observations divided by 4 (Kruskal and Wish 1978: 52), which is the case here.

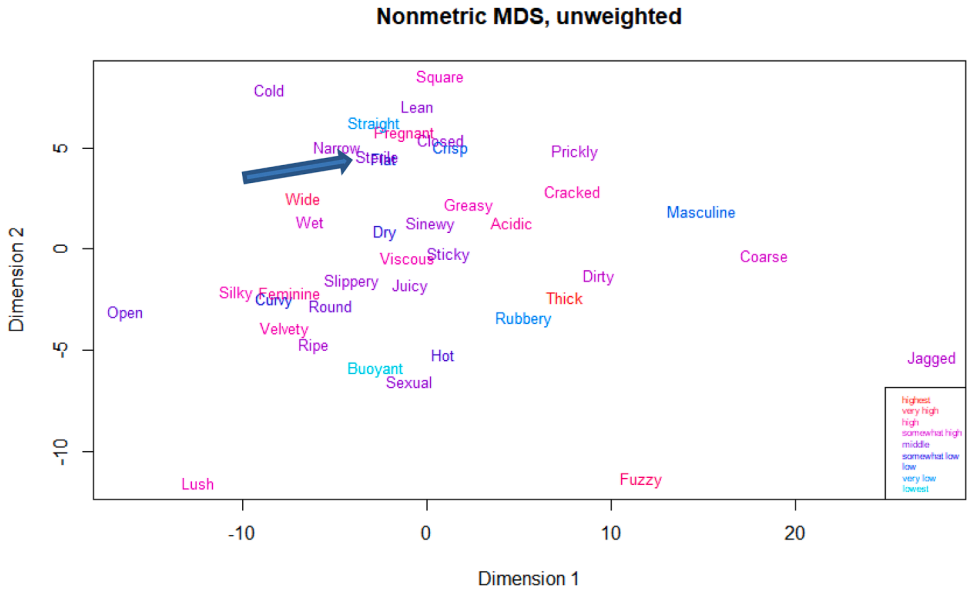


Fig. 2a. Dimensions One and Two. Note: arrow points to place where *flat* and *sterile* overlap.

Appendix E we show that using the size of the eigenvalues leads to a similar conclusion for the weighted data.)

While in nonmetric multidimensional scaling, the dimensions do not necessarily have interpretations *as* dimensions—all that matters is that we can adequately arrange objects so that their distances are consistent—it may well be that, in any particular case, we can tentatively provide an interpretation on the basis of an inspection of adjectives that are most extreme on either direction in this dimension. Even where there is a dimensional structure, it is not always the case that the dimensions appear as oriented on the page (the structure may be rotated in any way to best express the underlying logic, should there be any). However, the metric MDS analyses, like PCA/CA and related techniques, put the dimension that as the highest eigenvalue on the horizontal; we use a comparison of the two fits to determine how best to interpret our nonmetric MDS findings.

We here present the results as three graphs (Figure 2a-c) projecting the three dimensional positions onto the two dimensional space across one of the dimensions (beginning with the third, then the second, then the first). We preserve information about the missing

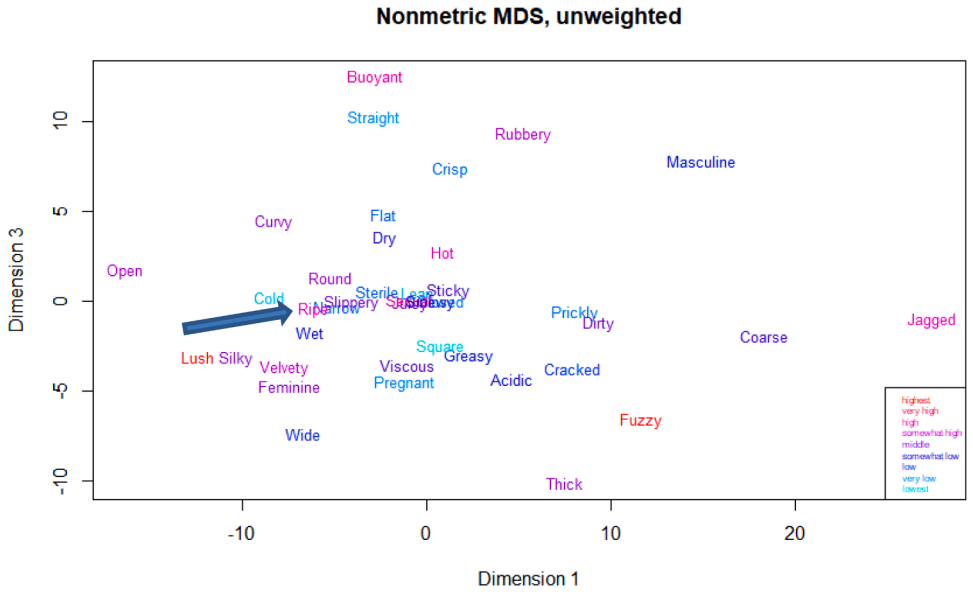


Fig. 2b. Dimensions One and Three. Note: arrow points to place where (reading left to right) *ripe, narrow, slippery, sterile, sexual, juicy, lean, sinewy, closed, sticky* overlap.

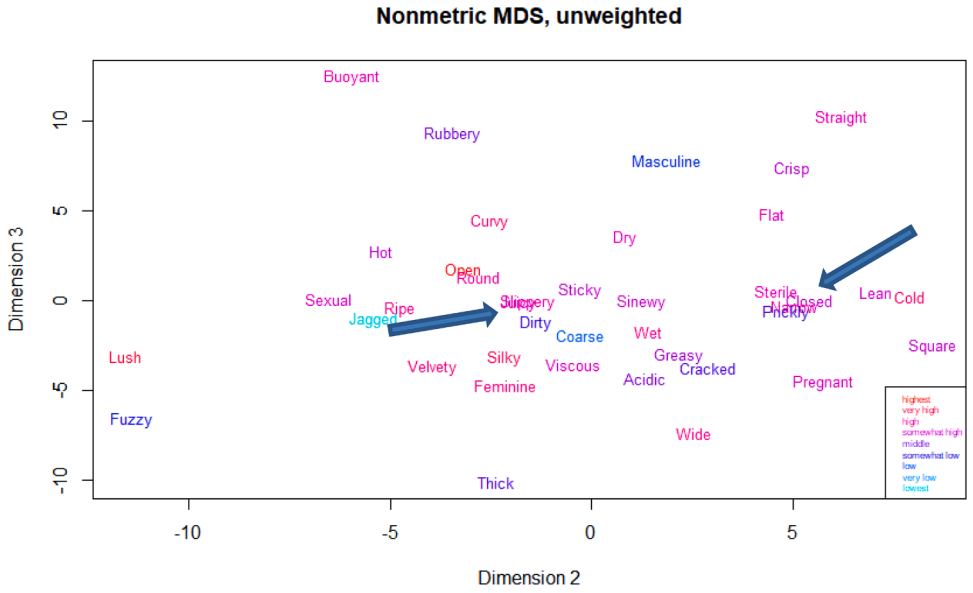


Fig. 2c. Dimensions Two and Three. Note: arrow on left points to place where *slippery* and *juicy* overlap; arrow on right points to place where *prickly, narrow*, and *closed* overlap.

dimension in the color of the term (used in the online versions), with warm colors indicating high on the collapsed dimension, and cold colors low. Terms that seem to overlap in a plot, but are different colors, are the same on only two of the three dimensions, and thus are discriminable by respondents.

To interpret dimensions, one generally considers the stimuli that are extreme on either end to look for commonalities and differences. In this case, we are fortunate the dimensions appear interpretable, and that they appear close to as initially oriented. Further, we find these dimensions (especially the first, which is most robust) appearing across the different variations we conducted in the analysis. The first dimension seems to be about something that we term *texture:* it runs from sounding *lush, open*, and *silky,* to sounding *prickly, coarse*, and *jagged*. It is interesting that this dimension also seems to stretch from *femininity* to *masculinity*. Thus we propose that the interpretation of the experiential dimension of texture is a gendered one, in that some sonic textures are experienced as sounding more *feminine,* whereas others as more *masculine*.

The second dimension is best described as *complexity*. It runs from things that are *cold, narrow*, and *flat* to things that are *fuzzy, lush* and *jagged*. Thus this sort of complexity may be understood as driven by a kind of *absence of possibility* in the non-complex. It is intriguing that, especially in the plots made with both the weighted and individuated data (see Appendix E, Figures 2a and 4a), the distribution in the first two dimensions appears as a V. (While this sort of shape can arise because the actual data-structure is one-dimensional, or one-dimensional with curvature, the scree plots indicate that this is not the case for these data.) At the bottom are those experiences that have little potential: the *cold, narrow, flat, sterile, straight* and *dry*. There are two directions of complexity—one towards the smoother, feminine side (going to *lush, open* and *ripe*) and one towards the rougher, masculine side (going to *jagged, coarse,* and *prickly*). These may also be seen as ways that a straight line can change—one path towards becoming a circle via global curvature, and the other path towards becoming a zig-zag via local alternation and negation.

The third dimension is, we propose, capturing something very like *density*. It runs from things that are *thick, wide* and *fuzzy* to things that are *rubbery, straight* and *buoyant*. (In the weighted analyses, the terms that are polar on the thick side are somewhat different, but the general arrangement is similar.) The key about density is that the experiential object seems to have a sufficient amount of "stuff" packed in to support heavier experiences. This might seem similar to complexity, but it appears to have more to do with the sort of variety of components at a small scale that implies that "much" is squashed together in a small volume. Thus something that is *jagged* might have complexity in contrast to something that is *flat*, but this does not make it have any particular *heaviness*. Something that is *buoyant* is low density, but relatively high complexity, and something that is *square* is low complexity, but high density, as opposed to something that is *straight*, which is low on both, or as opposed to something that is *fuzzy*, which is high on both.

These three dimensions—texture (gender), complexity (possibility), and density (microscale)—do not seem in any way related to the classic dimensions of Osgood et al., Evaluation, Potency, and Activity. This non-replication is in hindsight quite reasonable, given that we did not ask respondents to *evaluate objects*, but to *describe experiences*, but it was not expected. However, the finding that *texture* is relevant to the organization of our respondents' experience of music *is* consistent with Brattico et al's (2017) view of musical texture—a quality that emerges when local sound features like harmony and rhythm come together—as a central and elementary component of a sound's overall Gestalt that contributes significantly to esthetic experience. Also not expected was that there would appear to be underlying dimensions that seemed to align with binaries like masculine/feminine, simple/complex, heavy/light.

We do not of course believe that all respondents would experience all forms of music in a space defined by these three dimensions, let alone that all forms of cultural experience will have this structure. However, it is not impossible that the *form* of a structuring of experience coming from fundamental polarities will be common across modes of cultural engagement.

Discussion and conclusion

Robustness

One question that arises is whether the aforementioned describes an organization of *experience*, or of *talk*. Disentangling these completely is impossible, but we think the evidence falls on the side of this being actually a structure of experience. First, to test this question for a particular hypothesis being pursued with the in-depth portion of these data, we (Lembo, 2020) did a word association task *without* the samples, and found extremely different results. In other words, the associations that are part of general culture, or are inherent in the meanings of the words in general speech, are different from the patterns of co-use established in the experiential tasks. Second, our debriefing interviews with respondents, and examination of the transcripts in which they discuss their choices, do not suggest that these conventional associations are being made. Indeed, respondents actually seek to explain why what might seem like an incongruous pairing (*pregnant* and *sterile*, say) accurately characterizes their experience.[20]

But it still might not be immediately apparent why there would be something like a dimensional, or even an underlying binary or polar, nature to reports of experience. We propose that this arises simply because there are intrinsic negations in experience. If something feels like it is coming *towards* you, it necessarily also means that it isn't going away, and if the motion of experience is an important dimension, we might see this binary (to/from) structuring reports. So, too, if something is *jagged* and *coarse*, it isn't *silky*, and these are, we propose, associated with masculinity and femininity on an *experiential* (not merely verbal) level.[21] But it is worth emphasizing that oppositions in *experience* are not the same as opposition in *meaning*. For example, we (Lembo, 2020) previously noted that it was possible for a person to describe a sonic experience as both *closed* and *open*—in this case, trying to describe the feeling of being confronted with a spherical, bubble-like bounded space, yet one with an opening—an experience somewhat akin to crawling into an egg (as famously illustrated by Hieronymus Bosch).

We also note that our sample is not large, and is non-random (in fact, a snowball sample, although we used multiple seeds). While such samples are generally used in psychological investigations of esthetic perception where population inference is rarely the foremost concern, in this case, there is an advantage: it makes us more confident that we can treat the different respondents as members of the "same" culture. In line with this, we have treated all respondents as members of the same overarching sonic culture. This was not only necessary given the sample size, but seemed substantively correct to us: despite their different backgrounds, they shared an orientation to taking non-classical music seriously and were in the United States. Future comparative research can examine whether there are similarities in the structure of sonic experience across cultural backgrounds. This might allow researchers to go beyond a reliance on generic tautologies about subjective structures being the internalization of objective structures and examine what aspects of developmental histories appear to be related to variations in the structure of experience.

However, also related to the sampling method is the fact that our respondents were highly motivated – they took the test seriously, it made sense to them, and the description tasks were embedded in lengthy in-depth interviews with high rapport. That is welcome insofar as it increases the validity of our results here, but it may pose a problem for replication and extension. If these findings prove difficult to replicate with other samples, it may be difficult to adjudicate whether this is because the structure we uncover here is not a general one, or because not enough to the subjects were in a position to use the protocol to communicate their experience. However, the sociology of culture may want to seriously consider whether it wants to automatically follow the path of public opinion, which has concentrated on developing theories as applicable to those who basically have no opinions as to those who do (e.g., Converse, 1964).

Implications

Despite these qualifications, the results suggest that it is possible for sociologists of culture to get far closer to measuring experience itself than they have tried to do in the past. Our results are of course provisional, but they suggest that it is possible to tap aspects of

[20] Our own experience of carrying out the protocol also confirms that making associations at the verbal level does present itself as a useful means of simplifying the task—at least, not in a way accessible to conscious reflection.

[21] That is, it is not that the experience of music is *jagged*, which, according to high-level (abstract) cultural templates, is known to be associated with masculinity, but that things that are experienced as *jagged* overlap with those that are experienced *as masculine*.

experience that do not burn off its primordial feeling and leave only the evaluations and judgments. When we do this, we find an organization, a space of possible experiences. This arises, we believe, precisely because experience itself is meaningful, as opposed to some merely physical sensation devoid of meaning. The meaning of the experience of *jaggedness* (and not the meaning of the *word jagged*) is such as to take the subject in the opposite way from the experience of *silkiness*. The structure of cultural experience—at least, for this particular slice of the many possible forms of culture—is defined by the logic of this space of possible meaningful experience.

We pointed to the contrast between the examination of the structure of culture in the sense way with that conducted by Pierre Bourdieu and others, who use a data matrix in which cultural items become similar if they are enjoyed or consumed by similar sorts of people. Yet we do not think that the core understanding of the nature of cultural experience, one that we have taken from the social philosophy of William James and John Dewey, is incompatible with the fundamental ontology that Bourdieu puts forward. This is not merely because all were theorists who took the notion of "habit" seriously, but because Bourdieu's implicit social psychology is one in which actors have immediate esthetic responses to objects, using their qualities (e.g., a couch is austere as opposed to comfortable, a painting is familiar as opposed to jarring) to determine what is, and what is not, "for people like us." His assumptions as to the nature of experience are reasonable, but tend to rely on general cultural associations or on respondents who are justifying judgments (e.g., why garden gnomes *are* tacky). We would hope that the approach we put forward could be used to more rigorously determine whether these implicit hypotheses are correct, and whether there is variation across subsamples in the experience of similar cultural objects.

Extensions

However, this structure is certain to be conditional on some aspects of the protocol. Most obviously, the structure our data pertains (or so we imagine) only to the experience of musical sound—we do not meant to claim that it should be expected to hold for all sound, even for this set of hearers. Further, our samples involve only one type of musical sound, one that highlights "texture" and downplays organization. We would imagine that the experience (the actual experience) of music in which formal considerations are paramount would be organized quite differently. Thus a trained listener is likely to have the three experiences of a Bach piece played on a clavier, a harpsichord, and a piano, be quite similar to one another, despite how different the sounds are, in the way that someone who understands a language may take much—though not entirely—the same meaning when the same words are spoken by those with different voices.

We confess that we find it quite difficult to imagine how to extend this to more complex music, but we note the inroads already being made by psychologists of music on the experience of listening to particular pieces (see, e.g., Goldstein 1980, Nusbaum & Silvia, 2010). It may prove simpler to extend to other senses, where we can present textured samples, but our pilot testings have found it much harder for subjects to resist saying what the images given *looked like*, and the data gathering can degenerate into a Rorschach test.

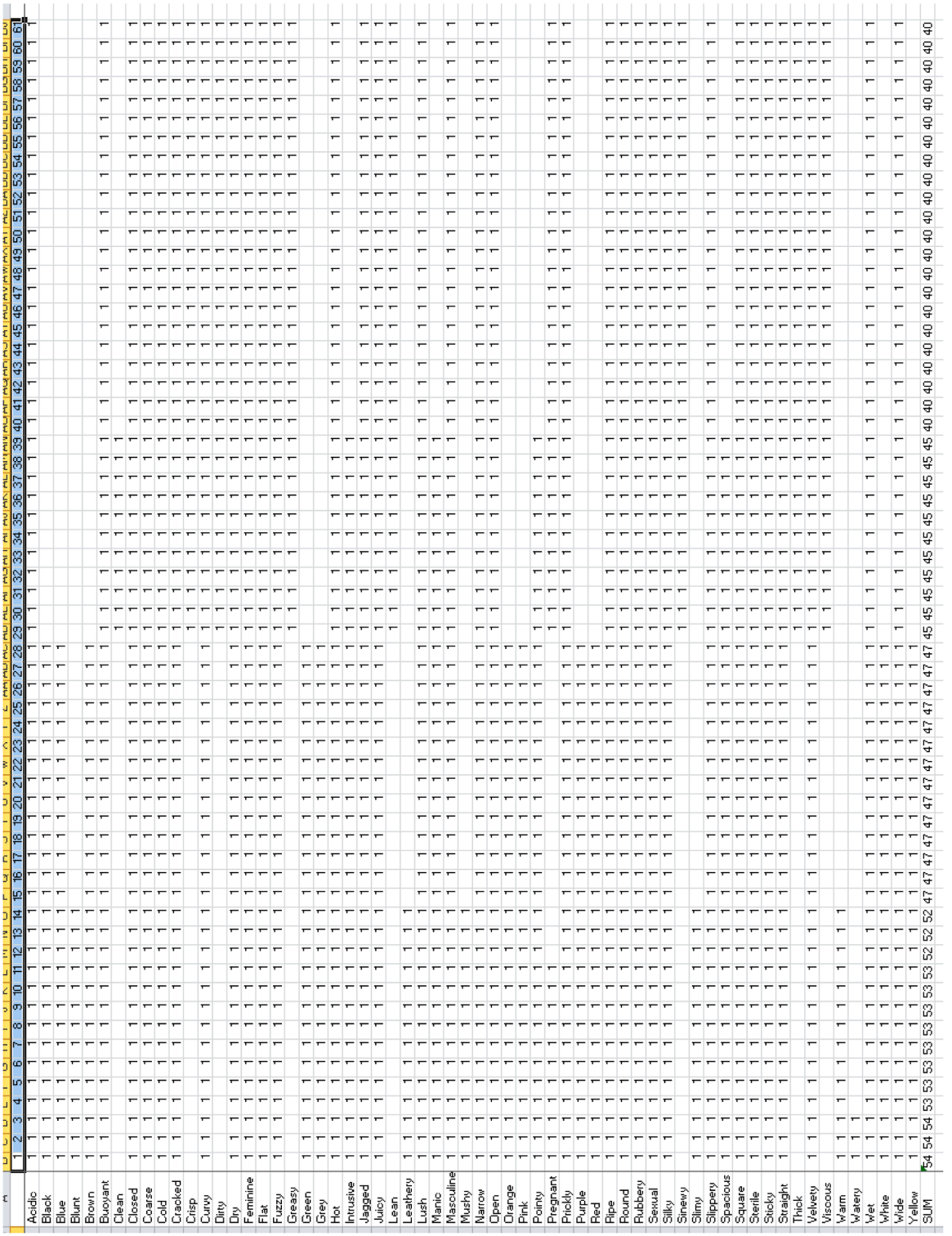
But the results are also certainly conditional to the type of subjects studied, most obviously, in terms of their cultural tradition. We thus have an empirical way of examining what is variant, and what invariant, in the structure of experience across different sets of subjects coming from different cultural and subcultural traditions of experience. Finally, we of course carried a single interview for each person. The ideas of John Dewey in particular imply that we should not assume that the same person always hears the same music in the same way. Most interestingly, we should imagine that (in addition to any fluctuations due to mood[22]) there could be long-term shifts due to esthetic socialization, like an increased facility in recognizing certain types of sounds. As far as we can see, there is, in principle, no reason why we could not trace the processes whereby people become acculturated to certain types of experience—to do just that sort of sociology of the senses that Simmel once proposed.

Acknowledgments

Earlier versions were presented at a special mini-conference, "New Directions in Culture and Cognition," at Zhejiang University, at a special conference, "Thinking Through Technique", at Vrije Universiteit Brussel, and the University of Manchester. We are grateful to our interlocutors there, and to Noah Askin, Austin Kozlowski, and Rick Moore for their comments and criticism.

[22] In particular, we might expect that stress or cognitive load will interfere with the exploration of more complex experiences and lead to a flattening of meaning, as well as a greater tendency for implicit expectations to guide experience, as the ratio of the importance of pre-existing connections to current sensation (in the terms of the Gestalt theorist Hans Cornelius [1897: 313ff]) will be higher.

Appendix A: Map of when Different Adjectives Were Used



Appendix B: List of Samples Used

Sample	Artist	Time	Respondents Presented with Sample, Using Numbers from Table in Appendix A
Chambermaid Swing	Parov Stelar	:22	1–11, 20
Decryptated	Rosa Yemen	:21	1–24, 34
Ringing Hand	Nels Cline	:24	1–14, 16–19, 22, 24, 26, 27, 29, 30, 33–49, 51, 52, 54, 55, 57, 58, 60, 61
Suck	Ethyl Meatplow	:19	1–13, 16, 19, 22, 24–32, 34, 35, 38, 41–44, 46–51, 53, 56, 57, 59, 60
Milk & Scissors	The Sadies	:31	1–5, 7–9, 13
<title in Japanese>	Shiina Ringo	:22	1–10, 15–18, 20, 23
Breaker	Low	:22	1–18, 21–23, 25, 27, 29–61
Lost River	Murder By Death	:22	1–11, 13, 15, 20–23
Bachelorette	Björk	:21	1–9, 11, 14, 16, 17, 21, 21, 23, 25, 30, 32, 35–39, 43, 48–53
I Think We're Alone Now	Tiffany	:12	1–9, 15, 16, 18, 19, 21–24, 26–28, 34–40, 42–46, 56
Christine Bonilla	Joy Zipper	:24	1–11, 13, 16–22, 24, 26–29, 31, 33–61
When I Go Deaf	Low	:25	1–9, 11, 12, 18, 19, 23, 25, 27–29, 31, 32, 34, 36–41, 43–45, 47, 52, 61
Dude Incredible	Shellac	:21	1, 4, 10, 11, 14, 17–19, 21–27, 30–32, 37, 39, 40, 43–47, 50, 51, 53, 61
Come In Alone	My Bloody Valentine	:21	1, 2, 11–19, 21–23, 25–30, 32–35, 37–40, 40, 43, 46–52
Pluto	Björk	:19	5–10, 15–17, 20, 23
La Schiena	Paolo Benvegnù	:24	11–24, 27
Your Lips Are Red	St. Vincent	:18	5–14, 16, 18–20, 22, 41
Sugar Cane Train	Judy and Mary	:21	11–14, 18–26, 28–30, 34, 41, 44, 46–48, 55, 58–61
Mandy	Pere Ubu	:18	1–9, 21–26, 28–31, 33, 34, 37, 40–42, 50, 58–61
Anna Christie	Tuxedomoon	:21	26–38, 41, 42
Pigeon Kill	Big Black	:12	26–61
Different Lie	Slapp Happy	:16	27–29, 38, 41–44, 56
Thor Is Like Immortal	The Fucking Champs	:22	29–50, 52–54, 56–61
Sea Song	Robert Wyatt	:25	29, 30, 36, 41, 43–61
Electric Fence	Califone	:22	31–61
Welcome To My Dream	Tiny Tim	:18	31–61
Lover's Spit	Broken Social Scene	:25	45–61
Brotsjor	Ólafur Arnalds	:24	48–61

Appendix C: Interview Set up

Appendix D: Relations of Weights

Here we show that the weights that we use in our multidimensional scaling models closely approximate those that we would construct if we used the actual number of co-presentations of any two terms.

The horizontal position is the weights formed by the relative proportion of trials in which any two adjectives i and j were both presented ($w_{ij} = p_{ij}$); the vertical position is the weight of the dyad that would arise from treating this relative proportion as arising from assuming independence ($w_{ij} = p_i p_j$).

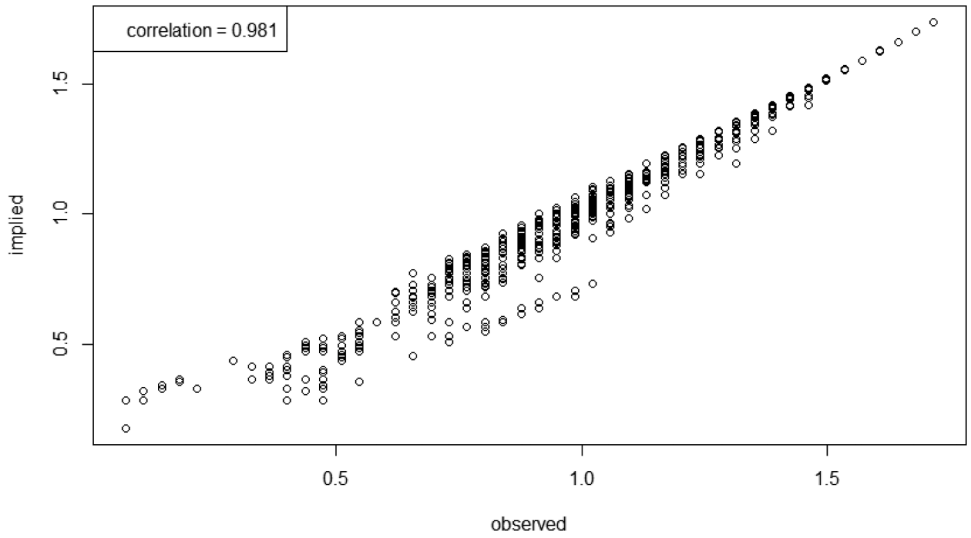


Fig. D.1. Correlation of Weights.

Appendix E: Alternate Constructions of Distances

We here present the results of doing the analyses two different ways. In the first, we use the weighted distance matrix, as described in the text. In the second, we create the distance between two adjectives by seeing how often they are used to describe the same sample *by the same interviewee*.

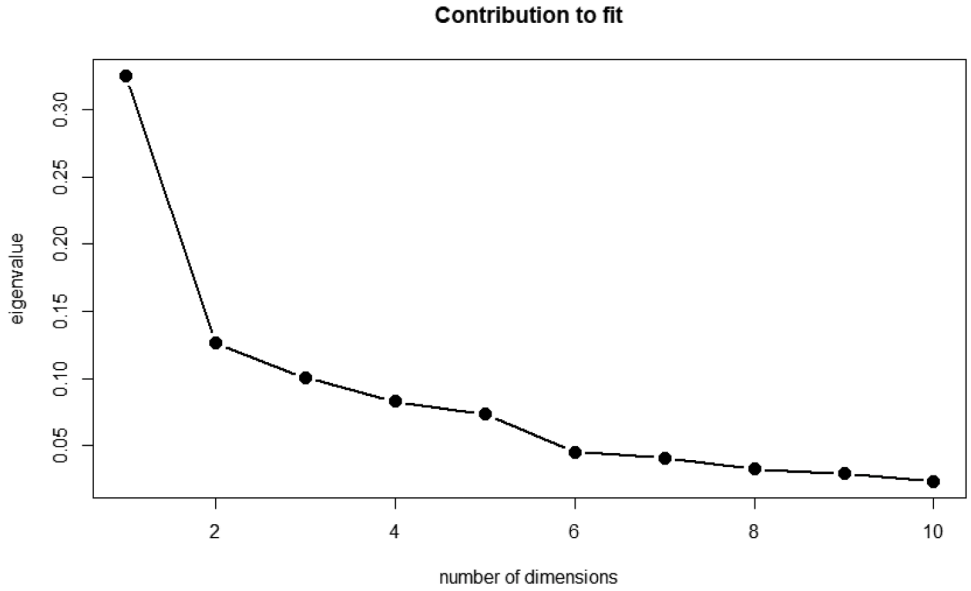


Fig. E.1. Fit of the Weighted Model.

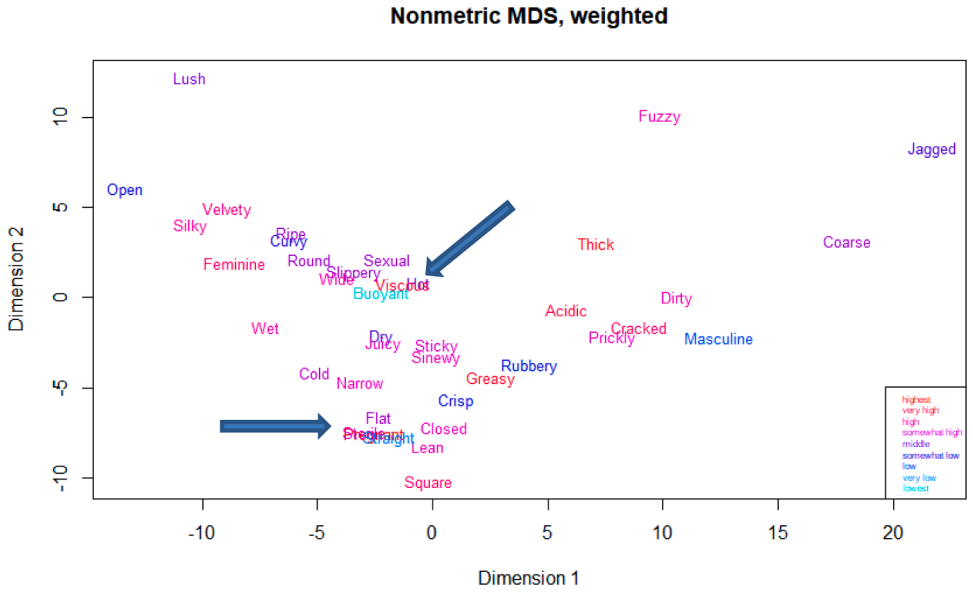


Fig. E.2a. Dimensions One and Two, Weighted Model. Note: top arrow points to place where *viscous* and *hot* overlap; bottom arrow points to place where *sterile, pregnant*, and *straight* overlap.

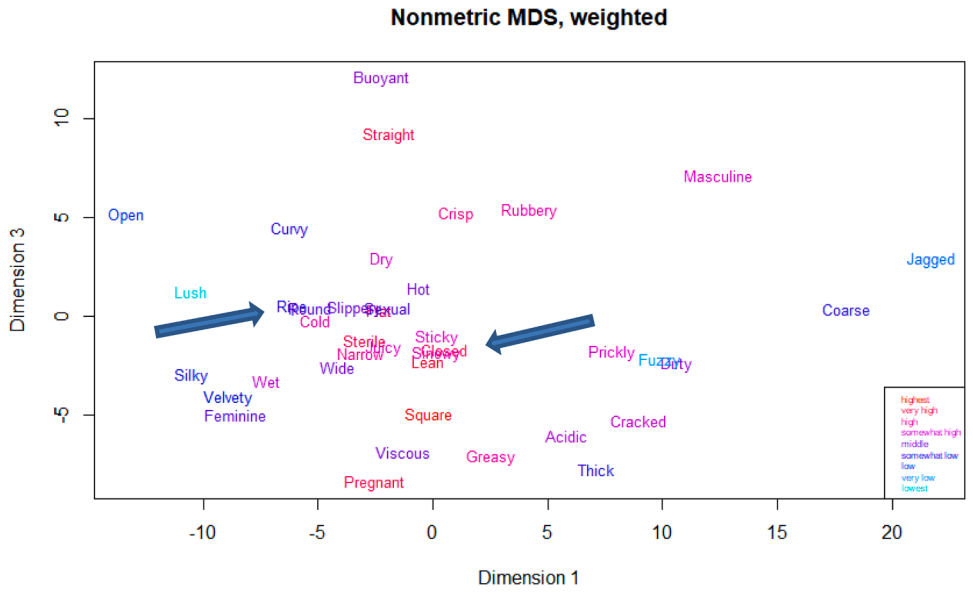


Fig. E.2b. Dimensions One and Three, Weighted Model. Note: left arrow points to place where *ripe, round, slippery, flat* and *sexual* overlap; right arrow points to where *sinewy* and *closed* overlap.

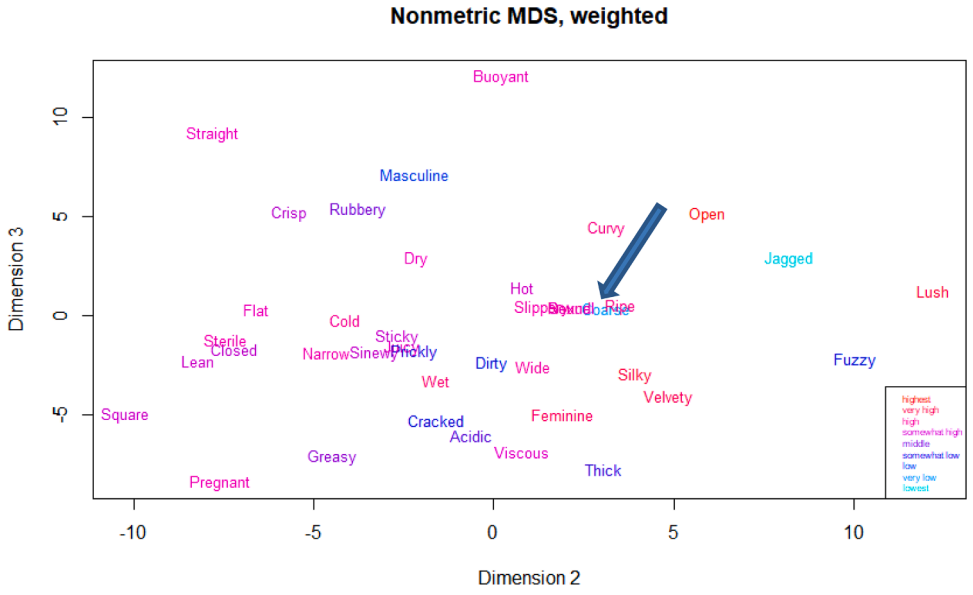


Fig. E.2c. Dimensions Two and Three, Weighted Model. Note: arrow points to where *slippery, round, sexual, coarse* and *ripe* overlap.

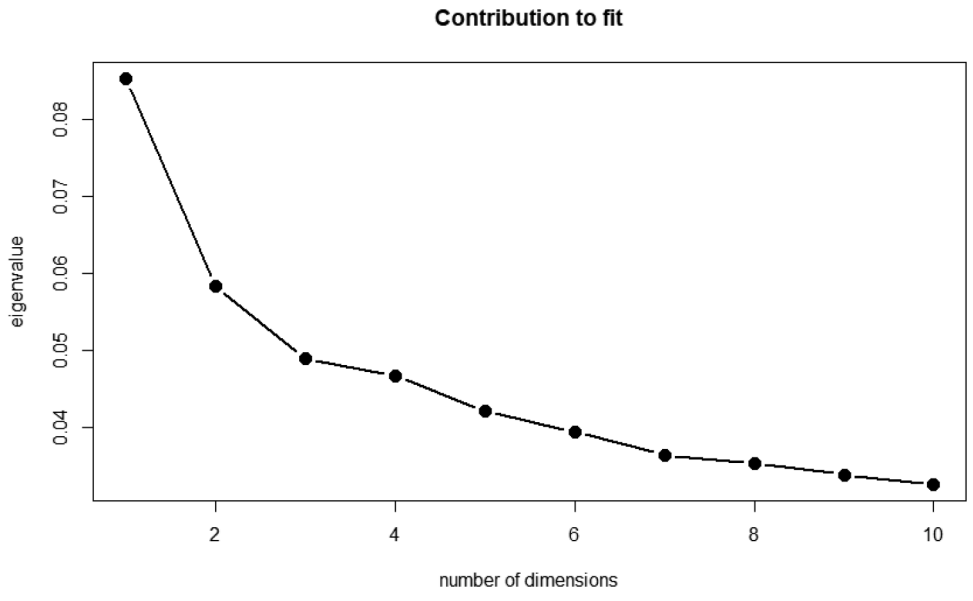


Fig. E.3. Fit of the By-Individual Model.

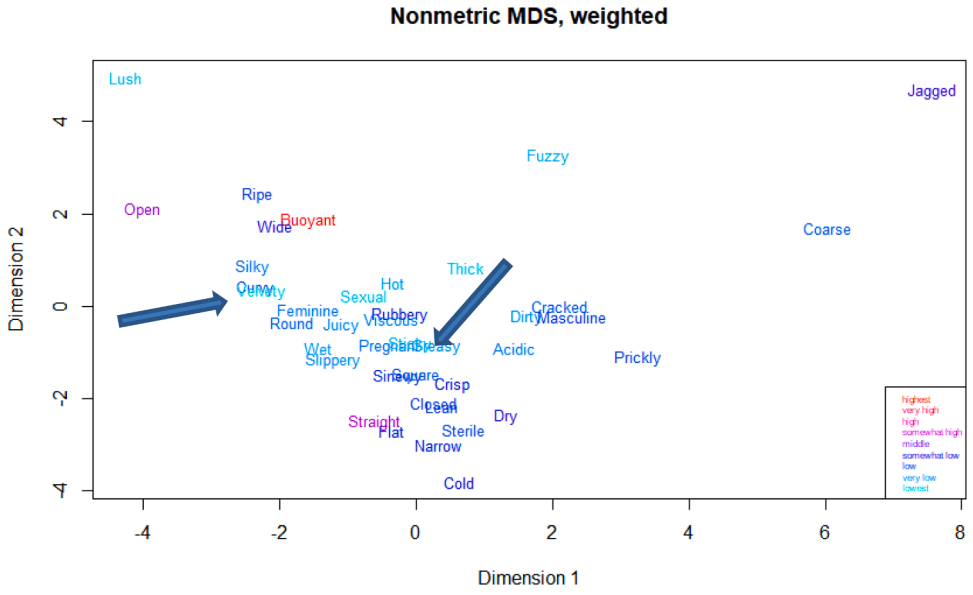


Fig. E.4a. Dimensions One and Two, Individuated Model. Note: left arrow points to where *curvy* and *velvety* overlap; right arrow points to where *pregnant, sticky* and *greasy* overlap.

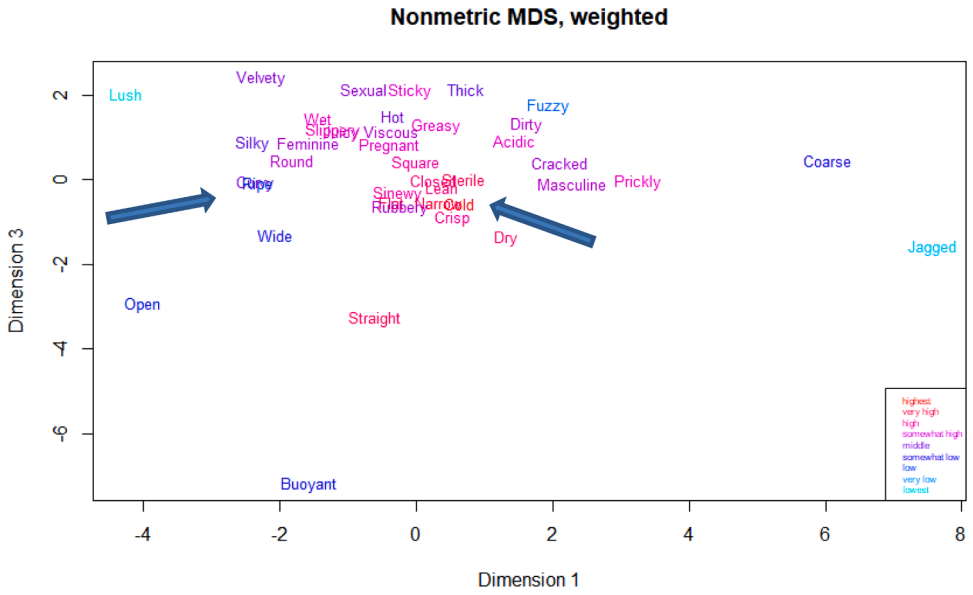


Fig. E.4b. Dimensions One and Three, Individuated Model. Note: left arrow points to where *ripe* and *curvy* overlap; right arrow points to where (reading left to right) *flat, rubbery, rubbery, sinewy, closed, narrow, lean* and *cold* overlap.

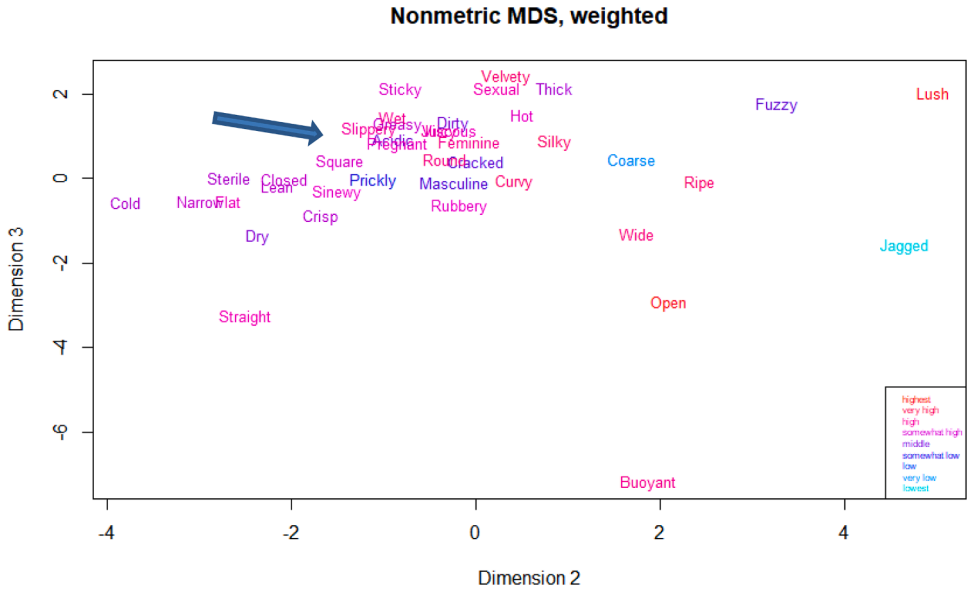


Fig. E.4c. Dimensions Two and Three, Individuated Model. Note: arrow points to where (reading left to right) *slippery, acidic, pregnant, greasy, wet, juicy, viscous* and *dirty* overlap.

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