Consensus and stratification in the affective meaning of human sociality

Jens Ambrasat[a,b,1], Christian von Scheve[a,b,c], Markus Conrad[b,d,e], Gesche Schauenburg[b,d], and Tobias Schröder[b,f]

[a]Department of Sociology, [b]Cluster of Excellence "Languages of Emotion," and [d]General and Neurocognitive Psychology, Freie Universität Berlin, D-14195 Berlin, Germany; [c]German Institute for Economic Research (DIW), D-10117 Berlin, Germany; [e]Department of Cognitive Psychology, Universidad de La Laguna, 8204 San Cristóbal de La Laguna, Santa Cruz de Tenerife, Spain; and [f]Institute for Urban Futures, University of Applied Sciences Potsdam, D-14469 Potsdam, Germany

Edited by Lynn Smith-Lovin, Duke University, Durham, NC, and accepted by the Editorial Board April 16, 2014 (received for review July 31, 2013)

We investigate intrasocietal consensus and variation in affective meanings of concepts related to authority and community, two elementary forms of human sociality. Survey participants (n = 2,849) from different socioeconomic status (SES) groups in German society provided ratings of 909 social concepts along three basic dimensions of affective meaning. Results show widespread consensus on these meanings within society and demonstrate that a meaningful structure of socially shared knowledge emerges from organizing concepts according to their affective similarity. The consensus finding is further qualified by evidence for subtle systematic variation along SES differences. In relation to affectively neutral words, high-status individuals evaluate intimacy-related and socially desirable concepts as less positive and powerful than middle- or low-status individuals, while perceiving antisocial concepts as relatively more threatening. This systematic variation across SES groups suggests that the affective meaning of sociality is to some degree a function of social stratification.

cultural consensus | affect control theory | large-scale survey | cluster analysis | mixed-effects models

The fabric of human sociality is widely agreed to be made up of a set of elementary relational forms such as authority, community, status, power, and the sacred (1–3). Given these universal dimensions of interaction and exchange, societies have differentially evolved regarding the socially shared meanings attached to these forms, as expressed in norms and values and the social institutions supporting them (4). Marked institutional and cultural differences in these meanings across societies are mirrored by high levels of consensus and stability within societies. Much of sociological research has been devoted to the idea that consensus is necessary for societies to exist in the first place (5). However, considerable intrasocietal variation in these meanings persists, as is evident in the diversity of political ideologies or religious beliefs (e.g., 6).

Theories of social integration argue that widespread consensus regarding the foundations of sociality is critical to achieve integrative, cohesive, and inclusive societies that are conflict-free, economically prosperous, and realize optimal fits of belief systems and institutions (7–9). Barriers to inclusion and cohesion exist when intrasocietal variation in these meanings is systematically associated with indicators of stratification and social inequality, such as ethnicity, age, sex, or economic resources. History has repeatedly shown that persistent and marked class differences lead to civil conflict in societies that otherwise emphasize democratic values of equal rights and opportunities (10, 11). Moreover, theory and recent evidence suggest that social structural differences in shared meanings produce distinctive and socially stratified patterns of behaviors, including those related to elementary forms of sociality, for example solidarity, subordination, or status conferral (12–16).

Importantly, these behaviors are only partly driven by deliberate thought and conscious judgment; for instance, on fairness, justice, or welfare. Instead, nonreflective and automatic cognitive-affective processes govern most of our day-to-day actions (17). Although deliberate thought is based on the symbolic and denotative meanings of concepts, automatic and intuitive processes are often driven by affective and connotative meanings. Affective meaning differs from lexical or denotative meaning in that it refers to the emotional connotation attached to identities, acts, objects, or the words representing them (18). Culture and socialization provide humans with stable structures of both denotative and affective meanings of basic concepts of sociality (19–21). Affective meanings are sources of implicit culture-specific knowledge guiding rapid, automatic social perception and behavior (22, 23).

The human mind organizes affective meanings along three cross-culturally universal dimensions, which are considered perceptual primitives in the socioemotional realm (24–27): Evaluation (or valence) relates to pleasantness or unpleasantness, with corresponding action tendencies of approach vs. avoidance; potency (or control) denotes strength or weakness and corresponds to dominant vs. submissive behavior; activity (or arousal) distinguishes excitement from calmness and is associated with the propensity to act or to refrain from action. The affective meaning of concepts is usually measured using the semantic differential technique (19, 24) (see *Materials and Methods* for details).

Past research has demonstrated that the distribution of concepts within this 3D affective space corresponds to a rudimentary semantic structure that is widely shared within social and cultural groups (e.g., nation states and ethnic groups) and fairly stable over time (19). For example, the concept "mother" reliably elicits very positive, slightly potent, and slightly active feelings across most

Significance

Humans use affective meanings of concepts as a source of information to automatically align social perceptions and behaviors with prevailing norms. Cohesive societies therefore require broad agreement on such meanings. Past research has yielded paradoxical findings. On the one hand, meanings of social concepts vary within societies, as evidenced by different lifestyles, values, and ideologies. On the other hand, studies have revealed considerable intracultural consensus and stability in affective meanings. However, such studies have been based on small and selective samples, seriously limiting our knowledge on the relative importance of consensus versus social stratification. Our large-scale study in German society fills this void, thus enhancing our understanding of the affective basis of social integration versus disintegration.

Author contributions: C.v.S., M.C., and T.S. designed research; J.A. and G.S. performed research; J.A. analyzed data; and J.A., C.v.S., and T.S. wrote the paper.

The authors declare no conflict of interest.

This article is a PNAS Direct Submission. L.S.-L. is a guest editor invited by the Editorial Board.

[1]To whom correspondence should be addressed. E-mail: jens.ambrasat@fu-berlin.de.

This article contains supporting information online at www.pnas.org/lookup/suppl/doi:10.1073/pnas.1313321111/-/DCSupplemental.

cultural groups, whereas the concept "rapist" is reliably associated with highly negative, potent, and active feelings. Consensus in affective meanings, i.e., concordance in the relative importance of these dimensions, is generally smaller across than within cultural groups. Differences have been shown to be systematically tied to culture-specific traits such as individualism vs. collectivism or power distance, which correspond to community and authority, respectively, as elementary forms of sociality (28–30).

A limitation of many previous studies conceptualizing culture as shared affective meaning is that they rely on student samples and typically equate cultures with nation states and language communities, thus possibly underestimating variations in shared meanings within these social units. Some studies that have addressed the question of intrasocietal variation in affective meanings point to differences, for example, between African and European Americans (31), sex and sex ideologies (32), and across status (33, 34) and religious groups (35). To our knowledge, no previous study has addressed the relative importance of cultural consensus versus intracultural variation using stratified or representative samples.

Such investigation is critical for an understanding of inclusive and cohesive societies, as past research on the cultural and social psychological dimensions of stratification indicates (11, 36–38). Given that affective meanings implicitly control most day-to-day behavior, one would expect that the noticeable differences in normative interpersonal behaviors across stratified groups (13) are linked to different affective meanings of core social concepts relevant to elementary forms of sociality. For example, first-generation college students with a working-class background have been shown to base their social interactions more on collectivist norms than the more individualistic majority of students with a middle-class background (39). Correspondingly, we would expect that affective meanings of community-related concepts (e.g., friends or family members) are perceived more positively in working-class culture than in middle-class culture.

The present study is thus motivated by two questions. Is there broad consensus in the affective meanings of sociality across a population, and can variation in meanings be explained by cultural–psychological differences between stratified groups of society? To this end, we investigate consensus and variation in affective meanings of social concepts, for the first time to our knowledge using a quasi-representative sample. We focus on authority and community as elementary forms of sociality because they are a common denominator in most research on the fabrics of sociality (although sometimes discussed under different labels) (1–3) and conceptually related to basic dimensions of affect, social cognition, and group coordination (e.g., 27, 40, 41). Likewise, we use socioeconomic status (SES) as the most widespread indicator of social stratification.

Materials and Methods

Sample. We conducted a large survey among the German population assessing a wide range of sociodemographic indicators and acquiring ratings of words representing authority-related and community-related concepts on the semantic differential. The web-based survey comprised 2,849 participants (1,461 female and 1,388 male, average age 46 y) recruited from a commercial volunteer access panel with ∼100,000 registered individuals across Germany. To obtain a sample that represents the stratification of German society and to minimize bias from the access panel population, we generated a proportional sample with age, sex, household income, education, and residential location as quotas (*SI Appendix*, Table S1 provides details).

Measures and Materials. The stimulus set contained 909 German words from the semantic fields of authority and community (307 nouns denoting social identities, 235 abstract nouns, 155 verbs denoting social behaviors, and 213 adjectives denoting social attributes). Selection of the words followed a three-step procedure. First, native German-speaking undergraduates ($n = 25$) at Freie Universität Berlin listed 20 words they intuitively associated with community and authority. Second, the 10 most frequently mentioned words were used as input to corpus linguistic analyses based on the *German Reference Corpus* (42) and the *Co-Occurrence Database* of the Institute for the German Language Mannheim (43). Similarity of cooccurrence profiles (separately for each semantic field) allowed identification of additional words with high semantic similarity (44). Third, we acquired additional normative ratings from German native speaking undergraduates of Freie Universität Berlin ($n = 149$) to determine the representativeness of each word for the two semantic fields.

To account for intrasocietal differences in the affective meanings of authority and community, we measured participants' SES. SES is used to categorize individuals into stratified layers of society representing unequal access to various resources. Usually, SES is represented by a continuous compound measure including education, household income, and occupational status (45–47). Given that our sample also includes students, apprentices, retirees, and unemployed, who are not accounted for in measures of occupational status, we focused on education and household income in generating a categorical SES variable for low, middle, and high SES (see *SI Appendix* for details).

Design and Procedure. Each respondent rated 60 words on the evaluation, potency, and activity (EPA) dimensions using 9-point semantic differential rating scales (19, 24; see *SI Appendix*). Of the 909 words denoting the semantic fields of authority and community, 9 words were presented to all respondents. The remaining 900 words were allocated to 18 subsets of 50 words each. Subsets were balanced for words' syntactic class and average normative authority and community ratings. Every participant was randomly assigned to one of the 18 subsets. We obtained an average of 158 EPA ratings per word in these subsets. All words were presented in random order.

Results

We first investigated consensus in the affective meanings of authority and community concepts across the entire sample. Results of Q factor analyses (19) show broad within-society consensus in affective meanings, for the first time to our knowledge confirming previous findings with a quasi-representative sample. The main component, which reflects the commonality in ratings of all respondents and thus indicates overall consensus, on average explains 58% of variance in evaluation ratings, 30% in potency ratings, and 23% in activity ratings (see *SI Appendix* for detailed analyses). This result broadly confirms the picture from previous consensus studies with student samples, summarized in ref. 19.

Organization of Social Knowledge in the Affective Space. Following the idea that affective meanings constitute a semantic primitive and encode implicit knowledge about the social order (22, 48), we performed cluster analyses on mean EPA ratings across all respondents to organize concepts according to their location in the EPA space. We expected the clusters to reflect the denotative conceptual structure of authority and community. We computed separate analyses for the 306 social identities (nouns), 155 social behaviors (verbs), and 448 abstract concepts (235 abstract nouns and 213 adjectives). For each analysis, we first used an agglomerative approach (Ward's algorithm) to identify the appropriate number of clusters. The dendogram, Duda and Hart index (49), and Calinski–Harabasz pseudo F-statistics (50) suggested five-cluster solutions for nouns and verbs and a four-cluster solution for abstract concepts. We then computed final clusters using the *k*-means algorithm and Ward's five-cluster solution as a basis (51–53). We interpreted all clusters based on mean EPA ratings and their most central words (see *SI Appendix*, Tables S3–S5 for details). Cluster interpretations were further informed by normative ratings of how well each word represents authority and community (*SI Appendix*). Normative ratings were not used to establish cluster solutions (full EPA data available as *Supporting Information*; see *SI Appendix* for details).

Social identities. Fig. 1 shows the cluster analysis for social identities (*SI Appendix*, Table S3). Cluster 1 (blue) comprises 59 words perceived as slightly negative [cluster mean for evaluation (M_E) = −0.59], quite potent [cluster mean for potency (M_P) = 1.10], and somewhat arousing [cluster mean for activity (M_A) = 0.75] and was interpreted as representing "Institutional Authorities." Representative words are Soldat (soldier), Manager (manager),

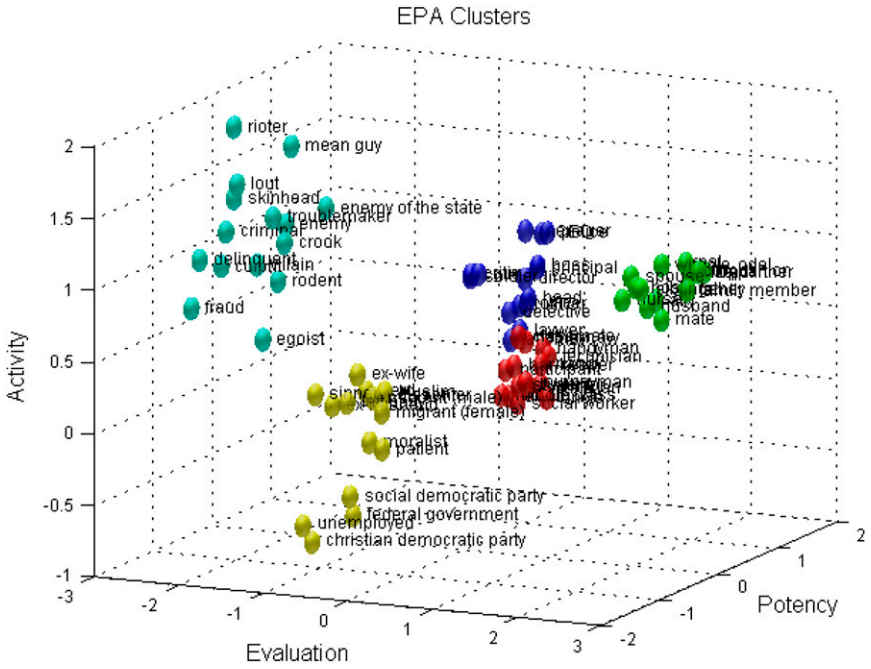

Fig. 1. EPA clusters for social identities: institutional authorities (blue), intimate relations (green), antisocial deviants (cyan), social underachievers (yellow), occupational identities (red). Displayed are the 15 most central words of each cluster.

Chefin (boss), Direktor (director), and Offizier (officer). Cluster 2 (green) includes 61 words perceived as very positive ($M_E = 1.68$), quite potent ($M_P = 1.06$) and somewhat arousing ($M_A = 0.88$), and was interpreted as representing "Intimate Relations" with strong social ties. Examples are Ehefrau (wife), Kumpel (pal), Kamerad (comrade), Lebensgefährte (companion), and Verbündete (ally). Cluster 3 (cyan) comprises 36 words evaluated as very negative ($M_E = -2.32$), not potent ($M_P = -0.13$), and quite arousing ($M_A = 1.02$) and was interpreted as representing "Antisocial Deviants." Central words are Schurke (villain), Störenfried (troublemaker), Krimineller (criminal), Skinhead (skinhead), and Täter (culprit). Cluster 4 (yellow) comprises 49 words perceived as quite negative ($M_E = -1.07$), powerless ($M_P = -0.65$), and rather unarousing ($M_A = -0.35$) and was interpreted as the "Social Underachievers" cluster. Representative words are Exmann (exhusband), Bundesregierung (federal government), Sünder (sinner), Moralist (moralist), and Patient (patient). Cluster 5 (red) is the affectively most neutral cluster and comprises 101 nouns at the center of the EPA space. Although it is the most semantically diverse cluster, it primarily consists of "Occupational Identities" with rather weak social ties, such as Student (student), Techniker (technician), Wirt (innkeeper), and Autor (author).

Social behaviors. *SI Appendix*, Fig. S1 shows the cluster analysis for social behaviors (*SI Appendix*, Table S4). Cluster 1 (yellow) comprises 49 words perceived as very positive ($M_E = 1.68$), very potent ($M_P = 1.25$), and quite arousing ($M_A = 0.98$) and was interpreted as representing "Prosocial Behaviors." Representative words are verdienen (to earn), auszeichnen (to award), zusammenarbeiten (to collaborate), kümmern (to care), and unterstützen (to support). Cluster 2 (green) includes 12 words perceived as rather negative ($M_E = -0.84$), somewhat powerless ($M_P = -0.36$), and unarousing ($M_A = -0.40$) and was interpreted as the "Submissive Behaviors" cluster. Central words are verlegen sein (to be embarrassed), gehorchen (to obey), ablehnen (to reject), beneiden (to envy), dienen (to serve), and unterordnen (to subordinate). Cluster 3 (red) contains 35 words perceived as highly negative ($M_E = -1.89$), of average potency ($M_P = 0.26$), and quite arousing ($M_A = 1.02$) and was interpreted as representing "Dominance Behaviors." Most central words are kündigen (to dismiss), bestrafen (to punish), stören (to disturb), verklagen (to sue), manipulieren (to manipulate), and drohen (to threaten). Cluster 4 (cyan) includes 32 words evaluated as highly negative ($M_E = -2.38$), quite powerless ($M_P = -0.81$), and somewhat arousing ($M_A = 0.42$) and was interpreted as the "Antisocial Behaviors" cluster. Representative words are demütigen (to humilate), erniedrigen (to debase), betrügen (to cheat), verraten (to betray), and ausgrenzen (to exclude). Cluster 5 (blue) is the most central and affectively neutral cluster comprising 27 behaviors such as beaufsichtigen (to supervise), gestehen (to confess), benoten (to grade), bitten (to request), and anordnen (to impose). Although it is the most semantically diverse cluster, it mainly contains behaviors in formalized and organizational settings and is thus interpreted as the "Routine Behaviors" cluster.

Abstract concepts. *SI Appendix*, Fig. S2 shows the cluster analysis for abstract concepts (*SI Appendix*, Table S5). Cluster 1 (green) comprises 158 words perceived as very positive ($M_E = 1.74$), very potent ($M_P = 1.25$), and quite arousing ($M_A = 0.82$) and was interpreted as the "Socially Desirable" cluster. Representative words are Solidarität (solidarity), Selbstwertgefühl (self-esteem), großzügig (generous), Gehalt (salary), fähig (capable), and Ehe (marriage). Cluster 2 (red) includes 72 words perceived as very negative ($M_E = -1.70$), quite powerless ($M_P = -1.00$), and somewhat calming ($M_A = -0.51$) and was interpreted as the "Socially Inferior" cluster. Most central words are Ohnmacht (powerlessness), hörig (to be under someone's spell), minderwertig (inferior), bedürftig (indigent), and Pflegefall (dependent on care). Cluster 3 (cyan) contains 88 words perceived as highly negative ($M_E = -1.85$), neither weak nor strong ($M_P = 0.24$), and quite arousing ($M_A = 1.03$) and was interpreted as the "Socially Threatening" cluster. Most central words are dreist (cheeky), strafbar (indictable), Krise (crisis), militant (militant), Strafe (punishment), and intrigant (scheming). Cluster 4 (blue) is the most central and affectively neutral cluster comprising 130 concepts with nearly neutral evaluation, very moderate potency, and low activity ratings. Although it is the most semantically diverse of all clusters,

we interpret this as the "Institutional Settings" cluster because it frequently contains words related to social and organizational environments, such as Privatschule (private school), Haushalt (household), Status (status), Subkultur (subculture), Opposition (opposition), or Gewerkschaft (trade union).

Consensus and Stratification in Affective Meanings. We found evidence for subtle but meaningful variation in affective meanings across socioeconomic status groups that qualify our overall finding of cultural consensus. We analyzed associations between socioeconomic status and the social identities, behaviors, and abstract concepts clusters. Because the survey follows a balanced incomplete block design, in which participants were allocated randomly to one of 18 word-subsets, the data structure resembles a planned missing data design in which data are missing at random (54). To account for this structure, we specified mixed-effects regression models with crossed random effects for participants and items separately for identities, behaviors, and abstract concepts with EPA dimensions as dependent variables (55).

For each model, we take the most central and affectively neutral clusters (Occupational Identities, Routine Behaviors, and Institutional Settings) as reference categories. This way, we can account for SES variation in EPA ratings that is not due to the affective meaning of concepts but rather to potentially unobserved SES differences (e.g., scale use or psychological dispositions) (see *SI Appendix* for discussion).

Stratification effects are modeled as interaction terms between SES and clusters. Hence, SES main effects reflect differences across SES groups in the affective meanings of the most central clusters used as reference categories. For detailed explanations and model coefficients, see *SI Appendix*, Tables S6–S8. All models were computed using *R* and the *lme4* package (56).

As a general result across identities, behaviors, and abstract concepts, cluster main effects support the distinctness of the clusters and the validity of the cluster solutions. *SI Appendix*, Tables S6–S8 show that cluster main effects are the strongest effects in all models, clearly supporting the consensus findings of the initial Q factor analyses. SES main effects (*SI Appendix*, Tables S6–S8) indicate variation in the affective meanings of the reference clusters. Results show a general tendency across all models of high- and middle-SES respondents to assign more positive, and for abstract concepts also more potent, evaluations to the affectively neutral reference clusters. On the one hand, this partly reflects general tendencies in SES-specific scale use (for a detailed discussion of response bias, see *SI Appendix*). On the other hand, it might be brought about by the denotative meanings of the reference clusters and words' syntactic categories.

Social identities. Fig. 2 shows interaction-term coefficients of the mixed-effects models for clusters and SES groups relative to the reference cluster Occupational Identities (*SI Appendix*, Table S6). Results indicate that high-status individuals evaluate Intimate Relations significantly less positive, less potent, and less active than respondents from lower-SES groups. Also, individuals with high SES perceive Antisocial Deviants more negative, more potent, and more arousing compared with lower-status individuals. Middle-SES respondents evaluate Antisocial Deviants more negative than the low-SES group. Likewise, high-status individuals evaluate Social Underachievers significantly less positive and potent than lower-status individuals. Contrary to our expectations, we find no significant associations between SES and Institutional Authorities.

Social behaviors. Fig. 3 shows interaction-term coefficients of the mixed-effects models for clusters and SES groups relative to the reference cluster Routine Behaviors (*SI Appendix*, Table S7). Results show that middle- and high-SES individuals evaluate Submissive Behaviors significantly less positive than lower-status individuals. High-status individuals also perceive Submissive Behaviors less potent and less arousing than low-SES individuals. Also, middle- and high-SES groups evaluate Dominance Behaviors significantly more negative than lower-status groups. Likewise, Dominance Behaviors are perceived as more potent and more arousing by high-SES compared with low-SES individuals. Middle-SES groups perceive Antisocial Behaviors as significantly less positive than low-SES individuals, whereas high-SES individuals evaluate Antisocial Behaviors as more potent and more arousing than low-SES individuals. We find no significant associations between SES and Prosocial Behaviors.

Abstract concepts. Fig. 4 shows interaction-term coefficients of the mixed-effects models for clusters and SES groups relative to the reference cluster Institutional Settings (*SI Appendix*, Table S8). Results reveal that middle- and high-SES individuals evaluate Socially Desirable concepts significantly less positive and less potent than low-SES individuals. Respondents with middle SES perceive Socially Desirable concepts as more potent than lower-SES individuals. Similarly, middle- and high-SES individuals evaluate Socially Inferior concepts more negatively, less potent, and less arousing than low-status individuals. Middle- and high-SES individuals evaluate Socially Threatening concepts significantly more negative than respondents with low SES. High-SES individuals also perceive Socially Threatening concepts as more potent and more arousing than low-SES respondents.

Discussion

This study shows that there is broad consensus within German society regarding the affective meaning of authority and community as foundational social relational dimensions of sociality. This is demonstrated for the first time (to our knowledge) using a quasi-representative sample and semantic fields instead of single words. Institutional Authorities, Antisocial Deviants, and Social Underachievers are perceived as relatively negative, whereas

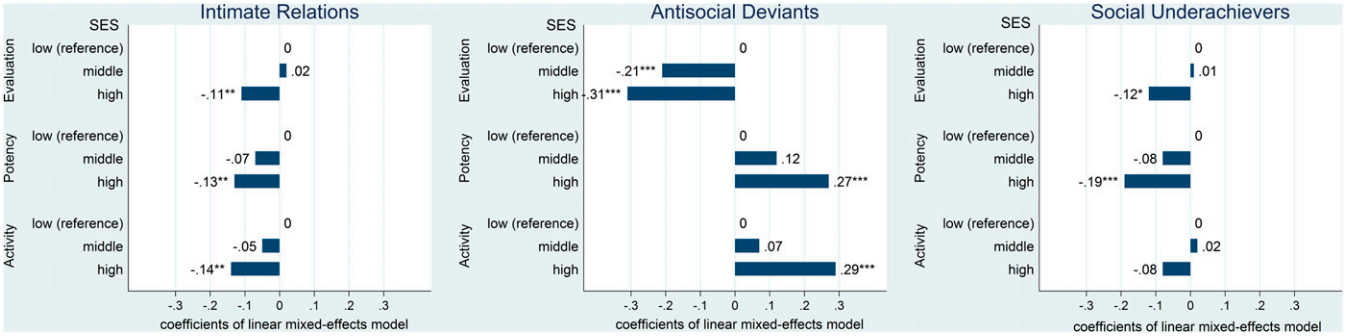

Fig. 2. SES differences in affective meanings for Intimate Relations, Antisocial Deviants, and Social Underachievers clusters. Bars correspond to interaction-term coefficients of mixed-effects models (*SI Appendix*, Table S5). Number of subjects, N_{sid} = 2,741; number of items, N_{wid} = 306; *$P < 0.05$, **$P < 0.01$, ***$P < 0.001$.

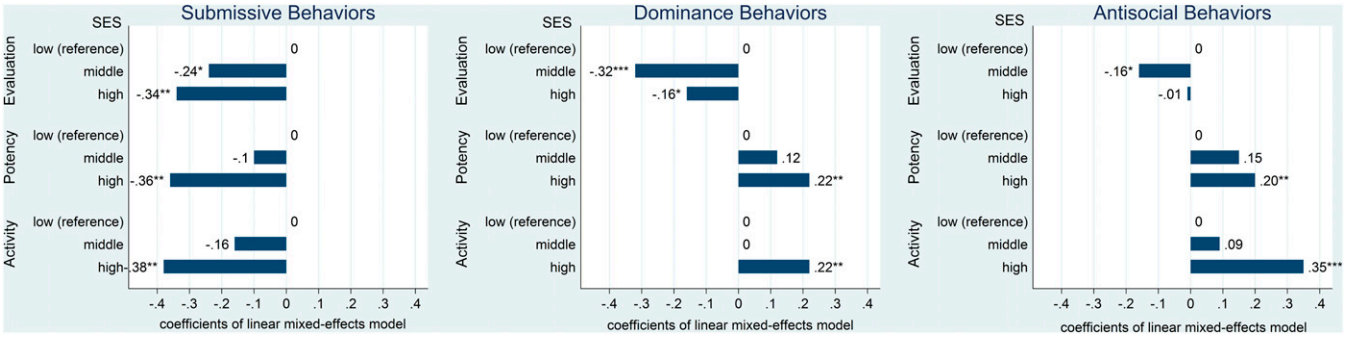

Fig. 3. SES differences in affective meanings for Submissive, Dominance, and Antisocial Behaviors. Bars correspond to interaction-term coefficients of mixed-effects models (*SI Appendix*, Table S6). Number of subjects, N_{sid} = 2,741; number of items, N_{wid} = 155; *P < 0.05, **P < 0.01, ***P < 0.001.

Intimate Relations are generally perceived as positive. Submissive, Dominance, and Antisocial Behaviors are all perceived as negative and not very potent in German society. In contrast, Prosocial Behaviors are seen as positive, potent, and active. Finally, Socially Inferior and Threatening concepts carry negative meanings and are not perceived as potent, whereas Socially Desirable concepts are evaluated most positively and potent. These findings concur with other lines of research on values and attitudes and show that consensus not only exists in terms of denotative meanings and declarative knowledge, but also in terms of basic affective perceptual structures guiding most day-to-day automatic behaviors.

At the same time, we also find evidence for subtle systematic variation in affective meanings across social strata. We demonstrate that the affective meaning of social identities, behaviors, and abstract concepts related to authority and community does depend on individuals' positions in the social hierarchy. The study shows that individuals with high socioeconomic status perceive Intimate Relations and Socially Desirable concepts as less positive and less powerful relative to individuals with middle or low socioeconomic status. One explanation for this finding is that the reference group consists of affectively neutral Occupational Identities that might be closer to higher-status individuals' self-conceptions. Antisocial concepts, such as social threats and deviance, have most pronounced negative meanings among high-status individuals, but at the same time are perceived as more powerful and arousing relative to lower-status groups. As a general pattern, actors in higher social strata perceive concepts associated with social underachievement, inferiority, and submission as less powerful, less arousing, and more negative than individuals in lower-status groups. In turn, high-status individuals perceive Socially Threatening concepts as most negative, potent, and arousing, whereas dominance concepts are perceived as least negative, potent, and arousing by low-status individuals.

Taken together, these results point to notable ambiguities in the affective meanings of sociality among higher-status groups. Although higher-status individuals assign a relatively more negative and weaker meaning to Intimate Relations, they tend to devaluate outright Antisocial Behaviors as well as identities that are threatening to social relations or that do not live up to certain social standards. Dominant behaviors and authorities are equally eschewed and perceived as potential threats, whereas those at the lower end of the social ladder are seen as powerless. This structure of affective meanings to some degree concurs with the socioeconomic structure of modern societies. High socioeconomic status groups may not be excessively dependent on Intimate Relations and strong social ties because they have sufficient economic and cultural resources at their disposal and are embedded in larger (occupational) networks consisting of rather weak ties (57). At the same time, various social institutions safeguard their status and resources. Threats to the social order and one's own position are thus perceived as negative and potent. Conversely, those at the bottom of society have considerably fewer resources and are more dependent on Intimate Relations and weak ties, thus assigning a more positive meaning to them—in particular relative to Occupational Identities that are most likely less important for low-status individuals' self-conceptions. An alternative to this social structural interpretation of findings is that variation in affective meanings across strata might be brought about by systematic differences in affective self-meanings and the ecology of everyday social interactions between members of different status groups (58).

Our findings regarding the stratification of affective meanings should be robust given that the data were collected in Germany, a highly industrialized and relatively wealthy and egalitarian society, which provides a rather conservative test of our hypothesis. On the other hand, this result might explain why there is little variation across social strata for the most straightforward

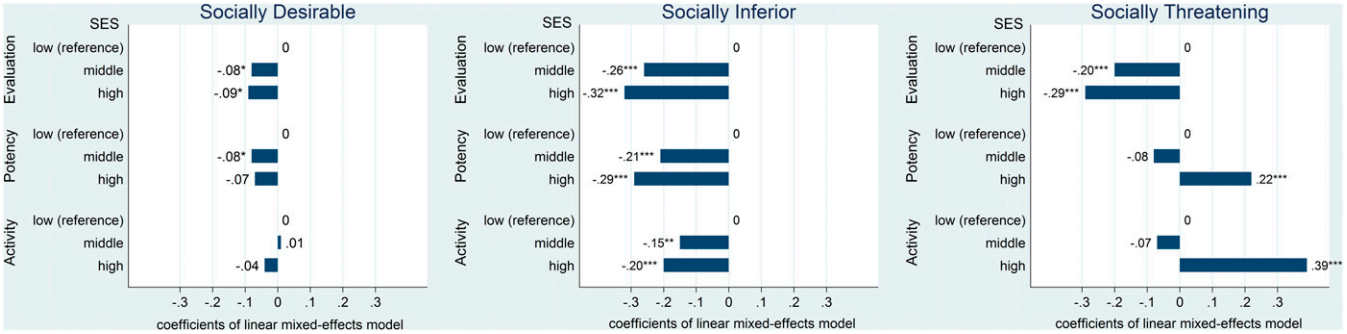

Fig. 4. SES differences in affective meanings of Socially Desirable, Inferior, and Threatening concepts clusters. Bars correspond to interaction-term coefficients of mixed-effects models (*SI Appendix*, Table S7). Number of subjects, N_{sid} = 2,741; number of items, N_{wid} = 448; *P < 0.05, **P < 0.01, ***P < 0.001.

concepts related to Prosocial Behaviors and Institutional Authorities, pointing to reliable institutionalized mechanisms of cultural transmission across societal groups. Our findings thus also contribute to the ongoing debate on the links between social class and prosocial behavior (14, 15). Future research should aim at comparative cross-national studies and investigate associations between macrosocial indicators (e.g., gross national product, literacy rate, and Gini coefficients) on the one hand and the degree of consensus in the affective meanings of sociality on the other. Our approach might thus also serve as a tool to monitor the degree of social integration in a society in a way that captures those components of the meaning of sociality that are most relevant for everyday behaviors rather than for what is normatively expected. The actual translation of affective meanings into distinct patterns of everyday interactions can be investigated using available simulation software (22, 23).

ACKNOWLEDGMENTS. We thank Susanne Löhne for support in collecting the data and Igor Grossmann, Paul Thagard, Lynn Smith-Lovin, our editor at PNAS, and three anonymous reviewers for valuable comments on earlier drafts. The research was supported by the Cluster of Excellence "Languages of Emotion" at Freie Universität Berlin within the Excellence initiative of the German Research Foundation.

1. Fiske AP (1992) The four elementary forms of sociality: Framework for a unified theory of social relations. *Psychol Rev* 99(4):689–723.
2. Haidt J, Graham J (2009) Planet of the Durkheimians, where community, authority, and sacredness are foundations of morality. *Social and Psychological Bases of Ideology and System Justification*, eds Jost J, Kay AC, Thorisdottir H (Oxford University Press, Oxford), pp 371–401.
3. Nisbet RA (1966) *The Sociological Tradition* (Transaction, New Brunswick, NJ).
4. Turner JH (2003) *Human Institutions: A Theory of Societal Evolution* (Rowman & Littlefield, Lanham, MD).
5. Simmel G (2009) *Sociology: Inquiries into the Construction of Social Forms*, eds Blasi AJ, Jacobs AK, Kanjirathinkal M (Brill, Leiden, The Netherlands).
6. Graham J, Haidt J, Nosek BA (2009) Liberals and conservatives rely on different sets of moral foundations. *J Pers Soc Psychol* 96(5):1029–1046.
7. Delanty G (2000) Social integration and Europeanization: The myth of cultural cohesion. *Yearbook of European Studies* 14:221–238.
8. Jenson J (2010) *Defining and Measuring Social Cohesion* (UNRISD, London).
9. United Nations Department of Economic and Social Affairs (2009) *Final Report of Expert Group Meeting, "Creating an Inclusive Society: Practical Strategies to Promote Social Integration"* (UNDESA, Paris).
10. Dahrendorf R (1959) *Class and Class Conflict in Industrial Society* (Routledge, London).
11. Massey DS (2007) *Categorically Unequal: The American Stratification System* (Russell Sage Foundation, New York).
12. Bourdieu P (1984) *Distinction: A Social Critique of the Judgment of Taste* (Harvard Univ Press, Cambridge, MA).
13. Fiske ST, Markus HR (2012) *Facing Social Class: How Societal Rank Influences Interaction* (Russell Sage Foundation, New York).
14. Piff PK, Kraus MW, Côté S, Cheng BH, Keltner D (2010) Having less, giving more: The influence of social class on prosocial behavior. *J Pers Soc Psychol* 99(5):771–784.
15. Piff PK, Stancato DM, Côté S, Mendoza-Denton R, Keltner D (2012) Higher social class predicts increased unethical behavior. *Proc Natl Acad Sci USA* 109(11):4086–4091.
16. Lamba S, Mace R (2011) Demography and ecology drive variation in cooperation across human populations. *Proc Natl Acad Sci USA* 108(35):14426–14430.
17. Bargh JA, Chartrand TL (1999) The unbearable automaticity of being. *Am Psychol* 54(7):462–479.
18. Finegan E (2008) *Language: Its Structure and Use* (Wadsworth, Boston).
19. Heise DR (2010) *Surveying Cultures: Discovering Shared Conceptions and Sentiments* (Wiley, New York).
20. Romney AK, Boyd JP, Moore CC, Batchelder WH, Brazill TJ (1996) Culture as shared cognitive representations. *Proc Natl Acad Sci USA* 93(10):4699–4705.
21. Romney AK, Moore CC (1998) Toward a theory of culture as shared cognitive structures. *Ethos* 26(3):314–337.
22. Heise DR (2007) *Expressive Order: Confirming Sentiments in Social Actions* (Springer, New York).
23. Schröder T, Thagard P (2013) The affective meanings of automatic social behaviors: Three mechanisms that explain priming. *Psychol Rev* 120(1):255–280.
24. Osgood CE, Suci GJ, Tannenbaum PH (1957) *The Measurement of Meaning* (Univ of Illinois Press, Urbana, IL).
25. Osgood CE, May WH, Miron MS (1975) *Cross-Cultural Universals of Affective Meaning* (Univ of Illinois Press, Urbana, IL).
26. Fontaine JRJ, Scherer KR, Roesch EB, Ellsworth PC (2007) The world of emotions is not two-dimensional. *Psychol Sci* 18(12):1050–1057.
27. Scholl W (2013) The socio-emotional basis of human interaction and communication. How we construct our social world. *Soc Sci Inf (Paris)* 52(1):3–33.
28. Hofstede G (2001) *Culture's Consequences: Comparing Values, Behaviors, Institutions, and Organizations Across Nations* (Sage Publ).
29. Schneider A (2004) The ideal type of authority in the United States and Germany. *Sociol Perspect* 47(3):313–327.
30. Schröder T, Rogers KB, Ike S, Mell JN, Scholl W (2013) Affective meanings of stereotyped social groups in cross-cultural comparison. *Group Process Intergroup Relat* 16(6):717–733.
31. Sewell AA, Heise DR (2010) Racial differences in sentiments: Exploring variant cultures. *Int J Intercult Relat* 34(4):400–412.
32. Kroska A (2001) Do we have consensus? Examining the relationship between gender ideology and role meanings. *Soc Psychol Q* 64(1):18–40.
33. Heise DR (1966) Social status, attitudes, and word connotations. *Sociol Inq* 36(2): 227–239.
34. Gordon RA, Short JF, Jr., Cartwright DS, Strodtbeck FL (1963) Values and gang delinquency: A study of street-corner groups. *Am J Sociol* 69(2):109–128.
35. Smith-Lovin L, Douglass W (1992) An affect control analysis of two religious subcultures. *Social Perspectives on Emotions*, eds Gecas V, Franks D (JAI Press, Greenwich, CT), 1st Ed, pp 217–248.
36. Bourdieu P (1986) The forms of capital. *Handbook of Theory and Research for the Sociology of Education*, ed Richardson JG (Greenwood, New York), pp 241–258.
37. Kohn ML (1989) Social structure and personality: A quintessentially sociological approach to social psychology. *Soc Forces* 68(1):26–33.
38. Chan TW, Goldthorpe JH (2007) Class and status: The conceptual distinction and its empirical relevance. *Am Sociol Rev* 72(4):512–532.
39. Stephens NM, Fryberg SA, Markus HR, Johnson CS, Covarrubias R (2012) Unseen disadvantage: How American universities' focus on independence undermines the academic performance of first-generation college students. *J Pers Soc Psychol* 102(6): 1178–1197.
40. Fiske ST, Cuddy AJC, Glick P (2007) Universal dimensions of social cognition: Warmth and competence. *Trends Cogn Sci* 11(2):77–83.
41. Kemper TDA (1978) *A Social Interactional Theory of Emotions* (Wiley, New York).
42. Kupietz M, Belica C, Keibel H, Witt A (2010) The German Reference Corpus DeReKo: A Primordial Sample for Linguistic Research. *Proceedings of the 7th Conference on International Language Resources and Evaluation*, eds Calzolari N, et al. (Eur Lang Resour Assoc, Valletta, Malta), pp 1848–1854.
43. Keibel H, Belica C (2007) CCDB: A corpus-linguistic research and development workbench. *Proceedings of the 4th Corpus Linguistics Conference*, eds Davies M, Rayson P, Hunston S, Danielsson P (University of Birmingham, Birmingham, UK). Available at http://ucrel.lancs.ac.uk/publications/CL2007/paper/134_Paper.pdf. Accessed May 6, 2014.
44. Belica C (2011) Semantische Nähe als Ähnlichkeit von Kookkurrenzprofilen. *Korpora in Lehre und Forschung*, eds Abel A, Zanin R (Freie Univ Bozen-Bolzano Press, Bolzano, Italy), pp 155–178.
45. Ganzeboom HBG, De Graaf PM, Treiman DJ (1992) A standard international socioeconomic index of occupational status. *Soc Sci Res* 21(1):1–56.
46. Keiko N, Treas J (1994) Updating occupational prestige and socioeconomic scores: How the new measures measure up. *Sociol Methodol* 24:1–72.
47. Hauser RM, Warren JR (1997) Socioeconomic indexes for occupations: A review, update, and critique. *Sociol Methodol* 27:177–298.
48. Barrett LF, Bliss-Moreau E (2009) *Affect as a Psychological Primitive*, ed Zanna MP (Elsevier, Amsterdam).
49. Duda RO, Hart PE (1973) *Pattern Classification and Scene Analysis* (Wiley, New York).
50. Calinski T, Harabasz J (1974) A dendrite method for cluster analysis. *Comm Statist Theory Methods* 3(1):1–27.
51. MacQueen JB (1967) Some methods for classification and analysis of multivariate observations. *Proceedings of the 5th Berkeley Symposium on Mathematical Statistics and Probability*, eds Le Cam LM, Neyman J (University of California Press, Berkeley, CA), Vol 1, pp 281–297.
52. Milligan GW (1980) The validation of four ultrametric clustering algorithms. *Pattern Recognit* 12(2):41–50.
53. Steinley D, Brusco MJ (2007) Initializing K-means batch clustering: A critical evaluation of several techniques. *J Classification* 24(1):99–121.
54. Rubin DB (1976) Inference and missing data. *Biometrika* 63(3):581–592.
55. Baayen RH, Davidson DJ, Bates DM (2008) Mixed-effects modeling with crossed random effects for subjects and items. *J Mem Lang* 59(4):390–412.
56. Bates D (2012) Linear mixed model implementation in lme4. Available at http://cran.r-project.org/web/packages/lme4/vignettes/Implementation.pdf.
57. Granovetter M (1983) The strength of weak ties: A network theory revisited. *Sociol Theory* 1(1):201–233.
58. MacKinnon NJ, Heise DR (2010) *Self, Identity, and Social Institutions* (Palgrave Macmillan, New York).