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Emotion and Social Structures: Towards an Interdisciplinary Approach

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Emile Durkheim in his writings on social solidarity over a hundred years ago made the intriguing logical supposition that emotions are the glue that holds society together (Durkheim 1893/1897; cf. Collins 1990: 27). What Durkheim was possibly trying to elucidate with his claim is that emotions, from a large-scale perspective and contrary to wide held scientific and public beliefs, are regular, relatively stable, and to some extent predictable phenomena that have their origins in the (equally stable) fabrics of society rather than solely in the individual self with its constantly changing needs and desires. Until the late 1970s, this and other claims from early sociologists like Georg Simmel and Max Weber on the significance of affect and emotion have not had a discernable impact on modern social theory. Fortunately, this seems to have changed since the re-discovery of emotions in the various disciplines devoted to the study of social behavior.

In the course of this re-discovery, research on emotion from a sociological perspective has attracted an increasing number of scholars to formulate more and more sophisticated theories that contribute to the understanding and explanation of emotion in social contexts. Some of the early disputes in the newly emerged sociology of emotion such as those between so called positivists and social constructionists (Kemper 1981) have ceased by now in favor of a more mature and less contentious debate. However, positivist and social constructionist arguments play a crucial role in understanding the history and, more importantly, the objectives of sociological theories of emotion: they differ from each other mainly in that they make concessions to biological predispositions to different degrees. Positivist accounts are primarily concerned with the social aspects of emotion elicitation and thus advocate a minimal set of biologically hard-wired physiological processes (Kemper 1978; Turner 2000). Constructionists, on the other hand, tend to disregard the role of biological mechanisms and view emotions as a purely social and cultural category (Shott 1979; Armon-Jones 1986). Within this continuum, social theorists have investigated a wide range of issues, for example phenomenological aspects (Denzin 1980), the construction of social action (Heise 1977), the regulation

of emotion and their expression (Hochschild 1979), the role of emotion in collective action (Flam 1990; Barbalet 1998), and the impact of social institutions on emotional behavior (Stearns 1994; Fineman 2003; Heinemann 2001).

Only more recently, Emile Durkheim's aforementioned supposition that emotions could play a key role in sustaining social order has been addressed more explicitly. In this respect, some of the most original contributions establish linkages between fundamental subject-matters of sociology, namely the emergence and maintenance of social structures and their interplay with individual action on the one hand, and approaches to emotion on the other hand. "Emotions link structure and agency", they are the "necessary link between social structure and social actor" as Jack Barbalet puts it (Barbalet 2002: 3–4; italics omitted). Besides Barbalet's (1998) own work, Steven Gordon (1990) has developed an inspiring research agenda for a social structural approach to emotions, to which authors like Theodore Kemper (1978), Randall Collins (1984), Jonathan Turner (1996), Michael Hammond (1990), Joseph de Rivera (1992), and others (had already) made valuable contributions.

However, when reviewing this literature it is evident that relatively little reference is made to different fields of research on emotion, for example in psychology, cognitive science or neuroscience, although these disciplines provide an extensive and substantial body of empirical and theoretical research on the topic. Why, one might wonder, consider this research at all and what could it possibly offer to the sociology of emotion and social theory more generally? These questions might be righteously asked, but if it is not out of curiosity that the sociologist takes a closer look at other disciplines' work on emotion, then this article aims at giving a number of good reasons and persuasive arguments convincing its readers that it indeed *makes a difference* for sociology to examine other disciplines' theories of emotion. This is particularly true for the social structural approach to emotion, as our concise review of the psychological and neuroscientific literature indicates. Another crucial reason is that sociology runs the risk of abandoning the integration and social scientific interpretation of new findings to researchers foreign to the subject matter—with rather unsatisfactory results (e.g., Panksepp 1994). The essence of this review, as presented in the following pages, highlights and briefly illustrates some of the outstanding key assumptions and prominent models in sociological, psychological and neuroscientific research on emotion, and successively suggests the further examination of the *link between* these theoretical traditions and consequently between emotion, individual, and society (emphasizing the probable recursive nature of this linkage). We thus also aim at new insights into the social causes and consequences of human emotions by combining ideas from disciplines concerned with low level analyses (e.g., neuroscience and psychology) with results and open questions found in the social sciences. Thereby, our intention is not to build a new theory of emotion on its own, but rather to integrate some of the diverse and broad perspectives (Kappas 2002).

Nevertheless, the idea to take into account "low level" and purportedly reductive theories of emotion to investigate portions of social reality is not a new one and

has its more general roots, as we suspect, in sociology's evidently irresistible (since recurring) flirts with biological explanations (Freese et al. 2003). First attempts in this direction have been outlined by Judith Howard and Peter Callero (1991), but also in a seminal volume by David Franks and Thomas Smith (1999), as well as by Michael Hammond (2003). Almost every sociological contribution devoted to the close consideration of psychological and neuroscientific data highlights the unconscious, automatic and involuntary aspects of emotion. One hypothesis derived from a sociological re-interpretation of such data is that unconscious processing of emotionally relevant information might exhibit certain regularities and structure which in turn promote the generation of consistent and therefore socially meaningful patterns of behavior. This claim seems even more interesting in the light of the ambitious research paradigm coined "social neuroscience", an interdisciplinary endeavor holding that "the mechanisms underlying mind and behavior are not fully explicable by a biological or a social approach alone but rather that a multilevel integrative analysis may be required" (Cacioppo et al. 2000: 829).

Not surprisingly, explicit attention to such multilevel analyses incorporating unconscious psychophysiological processes has been particularly rare in sociological thought, a circumstance probably due to Max Weber's conceptualization of social action (Weber 1921) and the prolonged disregard of biological explanations since the sociobiology debates (cf. Barbalet 1998). However, new techniques employed in the neurosciences, in particular functional magnetic resonance imaging and positron emission tomography, have led to groundbreaking insights into the neurocognitive foundations of human social behavior that might pose a challenge to our classical conceptions thereof. These techniques constitute a means to access the relevant processes in the brain that might not even be available to introspection, let alone any conveyance by verbal description or observation, as required by conventional sociological or ethnographic methods. Some sociologists' affinities towards such newly emerging methodological approaches combined with a profound interest in sociological key issues have for example led to the emerging field of *Neurosociology* (TenHouten 1997).

Although the disciplines involved in emotion research scarcely present a coherent picture or unified interpretation of their data, there are certain paradigms aiming at the advancement of consistent frameworks that are capable of dealing with other disciplines' findings and also with some of the infamous pitfalls of interdisciplinary work. For example, the steady refinement of appraisal theories of emotion and the incorporation of neuroscientific data into this framework (Scherer 1993; Clore/Ortony 2000; Smith/Kirby 2000) give us a glimpse on how emotions are elicited by automatic and non-automatic processes alike. They thereby provide hints for a more thorough understanding of the interaction of higher cognitive (complex social) and more basic operations and ultimately also of social behavior. Advocates of these paradigms, particularly in psychology and neuroscience, have presented valuable but rather unnoticed insights for the social sciences: Within these theories and empirical studies, the social environment is an inherent and

significant, though poorly conceptualized point of reference. Thus, interfacing advanced sociological models of the social with such approaches to emotion might well contribute to a more detailed picture of emotions as the glue holding society together.

As our review of the respective literature illustrates, neuroscience and psychology turn out to be vital sources of knowledge for any social scientist interested in the study of emotions, particularly those concerned with social structural analyses. Certainly, this is also true from the opposite point of view, but we will refrain from trying to bridge too much unknown territory at once. Hence, we will solely clarify how sociological theory might profit from the sound consideration of this knowledge by focusing on the role of emotion in the micro-macro link and the questions, how emotions influence social structural dynamics and how social structures influence emotions, respectively. Accordingly, we first outline the qualitative methodology underlying our endeavor. We then follow up a conceptual separation of the emotion theories under scrutiny into three levels of (mainly analytical) abstraction: micro-, meso-, and macro-level. The investigation of the micro-level is foremost concerned with aspects of emotion located primarily inside an individual, i.e. the neural architecture and the corresponding pathways underlying emotion on the one hand, and cognitive processes and structures (mental representations) working on this architecture, on the other hand.

The investigation of the meso-level examines the social environment as part of the emotion process. Here, we concentrate on features of the social world which are directly perceivable by an actor's sensory system, i.e. the immediate social situation and the objects, acts, and events constituting it. Paramount is the question of how micro-level mechanisms become effective in social situations, what properties of a social situation trigger emotion elicitation, and how emotions themselves become features of a social situation, that is, how they are expressed, communicated, and regulated.

Macro-level investigation scrutinizes in what way emotion relates to social structural dynamics, i.e. to the micro-macro link. Although this linkage has been considered a dichotomy for a long time and been analyzed either from the bottom up or top-down, more recent debates suggest that there exists mutual influence between the two domains, and that neither of them should be examined separately (Alexander/Giesen 1987; Wiley 1988). At the same time, there is a paradigm in sociological thought highlighting the role of cognitions in the analysis of social structural phenomena—at least of those phenomena that might be causally linked to individual psychologies (Cicourel 1981; Collins 1981; Lawler et al. 1993; DiMaggio 2002). Adhering to this view allows us to access certain structural dynamics from a perspective that locates their causal origins in individual social behavior. Our task then is to elucidate the threefold and recursive relationship between structure, cognition, and emotion. This is further explicated in the final section, where we briefly illustrate linkages to two grand social theories, those of Norbert Elias and of Pierre Bourdieu.

METHOD

With respect to the interdisciplinary agenda outlined above, we consider qualitative-heuristic analysis (Kleining/Witt 2000) to be the method of choice in view of the comparison of different theories. The qualitative-heuristic methodology is a means to discover blind spots in a specific theory and to shed light on these spots using adequate and fitting statements of complementary theories. We have chosen most prominent and consensual approaches to emotion from psychology and neuroscience at the best of our knowledge and as far as we have been able to overview the fields. In addition, the selection of the theories was guided by the usefulness and decidedness of the references and connections to the social environment that we found to be inherent (though often implicit and hidden) in these theories. By highlighting transitions to the social world and by relating it to the internal causes and consequences of emotion, qualitative heuristics provide insights in how far these theories might contribute to a better understanding of fundamental sociological issues. However, this kind of theory comparison and integration is prone to be alleged of eclecticism in that it arbitrarily selects theories and extracts adequate statements. It is indeed true that the qualitative heuristic analysis of theories is an explorative endeavor that necessarily has to select between different theoretical options. However, the selection process is by no means arbitrary since the methodology prescribes in great detail how to proceed when extracting information from different sources (Kleining/Witt 2000). In this sense, the method is eclectic in the best sense of the term: it does not leer at what is considered *best* in various doctrines, rather it composes a framework from various sources as long as these sources are not incompatible with each other. This does not mean, of course, that our approach claims to reflect and incorporate emotion research in its entirety. What it does, however, is reflecting the selected approaches in their entirety and in a consistent manner. That, indeed, is no picking and choosing and has been successfully done in the field by others before us (e.g., Scherer 1993). Beyond, and more importantly, this is the very basis of interdisciplinary research.

Some of the crucial blind spots in emotion theory that might be illuminated with this methodology can be found at higher levels of social aggregation. Since Max Weber's (1921) analytical distinction between different levels of social reality (action, organization, patterns of dominance and submission), many scholars have divided—either conceptually or as a matter of fact—the analysis of society into different levels of abstraction. Although these conceptions differ in questions of detail, they are surprisingly coherent along the axis of individual, interaction, structure, and culture levels (Wiley 1988: 256–259). Astonishingly, analogous distinctions have been successfully proposed in emotion research. James Averill (1992), Dacher Keltner and Jon Haidt (1999), Arvid Kappas (2002), and others have similarly introduced multilevel analyses along the lines of biology, psychology, sociality, and culture. In both cases, the proponents of multilevel approaches stress the importance of the many-faceted interdependencies between the different

levels and carefully advise against their isolated examination. Therefore, in order to locate connecting links between the different theoretical traditions, it seems evident to adhere to these points of convergence and to separate different levels of social reality, both, as an analytical means to handle social complexity as a dependent variable, and as a way to dissect its causal influences on the emotion process as an independent variable. Consequently, we subdivide social reality into micro-, meso-, and macro-levels along which the societal functions of emotion can be analyzed. In the first place, this distinction is conceptual-analytical in that the micro-level represents intra-individual aspects of emotion, the meso-level corresponds to the domain of social interactions, and the macro-level to the social structural domain, which we assume is in turn partially represented on the micro-level.

Social units, i.e. groups, teams, communities, organizations, and societies are considered to be forms of social interaction which are mutually, repeatedly, and orderly carried out by a specific, although possibly dynamic number of individuals. They are not necessarily coherent in time and space and may thus exist independently of physical co-presence and time disparities. In addition, social units are characterized by several non-physical qualities such as norms, obligations, rules, laws, rites, institutions, etc. Individuals constituting a social unit have to have explicit or implicit, internalized knowledge about these qualities in order to act in relation to them—they constrain or enlarge actors' options for action and facilitate interactions among actors by reducing problems of complexity, uncertainty, and double contingency. These non-physical properties mainly consist of mental representations, especially beliefs, and their structured social distribution in and amongst different social units is what makes them "faits social". In this respect, Karin Knorr-Cetina argues that "the macro appears no longer as a *particular layer* of social reality *on top* of micro episodes [. . .] Rather, it is seen to reside *within* these micro-episodes where it results from the *structuring practices* of agents" (Knorr-Cetina 1981: 34; italics original).

If social structural phenomena can be partially conceptualized as having cognitive counterparts (a stronger assertion would be to suppose that they are of cognitive origin or have causal cognitive foundations), then we can further assume that these counterparts, i.e. mental representations and cognitive structures, interact with emotions in the same way as other cognitions do. Thus, the cognitive perspective on social structures in combination with low level theories of emotion allows investigating the linkages between emotion and social structures on *all* levels of analysis simultaneously. We are well aware of the fact that this "macro resides within micro" model appears somewhat limited in its ability to capture and describe physical large-scale social processes, for example social mobility rates, income distributions, or population densities. However, it has been persuasively argued elsewhere that these social phenomena can be plausibly considered reifications or objectifications of patterns of social behavior (Collins 2000; Turner 1988/2003). Against the background of this paradigm, we show how emotions can be conceptualized to corroborate this paradigm's basic assumptions.

APPROACHES TO EMOTION

Before we examine specific theories of emotion in more detail, we briefly illustrate different approaches to emotion from the social and cognitive sciences in order to generally clarify how different disciplines can mutually profit from one another despite their different fields of interest and varying research goals. Although distinctions between the disciplines cannot always be drawn sharply, we will subsume them under the categories "sociology" and "cognitive sciences" to emphasize the respective levels of analysis. The cognitive sciences encompass fields of inquiry such as cognitive and social neuroscience, and the different psychologies, whereas sociology represents sociological and social psychological research.

Sociology The sociology of emotions has struggled with the aforementioned debates between positivist and social constructionist positions for quite some time (Kemper 1981). The focus of constructionist approaches is on the examination of social and cultural influences on emotions, i.e. on the elicitation, expression, and regulation of emotion (Hochschild 1979; Armon-Jones 1986; Thoits 1989). Constructionists generally deny the existence of biologically hard-wired (basic) emotions and argue that emotions are foremost a product of the social environment (Shott 1979). By now, it seems that the more radical constructionist position has been abandoned in favor of a more widely accepted position that does not deny the involvement of physiological processes altogether. This moderate positivist position, originally elaborated by Theodore Kemper (1978), has received increasing attention and support in recent years and set the stage for advanced sociological approaches to emotion (Turner 2000; Barbalet 1998) that have been highly recognized also in disciplines other than sociology. One reason for this is their extensive coverage and in depth analysis of the interpersonal instead of the intrapersonal aspects of emotion that have been neglected in the cognitive sciences by and large (Miller/Leary 1992: 202).

Closely connected to the interpersonal meso-level is the investigation of large-scale social structural (macro) causes and consequences of emotion, an issue which is yet exclusively in the domain of sociology. Kemper, for example, argues that emotions mainly result from social relationships which he characterizes by the dimensions of social status and power (Kemper 1981: 344). According to Kemper, social structures are made up of the distribution of the social resources status and power. This way, social structures and emotion influence each other reciprocally in Kemper's model.

Randall Collins (1984), on the other hand, argues that an exchange of "emotional energy" in social interactions facilitates the emergence of social structures. Collins assumes that humans have an inborn need to keep up sufficient levels of "emotional energy" and therefore steadily seek interactions providing gains of emotional energy and avoid those causing decreases. A similar argument is marshaled by Michael Hammond (1990) who takes a more explicit evolutionary perspective on social exchange, analogously stating that humans have an inborn need for emotional

gratification. This, according to Hammond (1990) and also to Turner (1996), lets actors prefer choices maximizing their emotional outcome. In connecting micro- and macro-levels of analysis, other scholars have also highlighted the role of specific emotions as causal structuring agents, e.g. pride and shame (Scheff 1997), and resentment, confidence, and fear (Barbalet 1998; Tudor 2003).

Needless to say, these are valuable and original contributions towards an understanding of the relation between emotions, individual behavior, and social structures. On closer examination however, almost all approaches mentioned above could still profit from additionally accounting for cognitive science theories of emotion. For example, Collins' (1984) concept of structuration and the role of emotion therein is a promising approach but the central concept, emotional energy, remains regrettably opaque throughout his explanations. His concept, as well as Hammond's approach (1990), could well be specified by taking a glance at models of emotion addressing the role of neural circuitry responsible for stimulus-reinforcement learning and ultimately for motivated action (Rolls 2004: 23). Another example is the pioneering neurosociological work in an edited volume by Franks and Smith (1999). The authors therein relate neuroscientific research to the sociology of emotions in an innovative way, but unfortunately omit the mediating role of cognition in the issues discussed so that important aspects of emotion still remain unrefined for sociological use. They could, for instance, draw supplementary information from cognitive theories of emotion that, ideally, also take into account neurophysiological data (Parrott/Schulkin 1993; Scherer 1993; Clore/Ortony 2000). Therefore, in order to thoroughly grasp the social causes and consequences of emotion, we need an integrative framework comprising and interfacing the social, cognitive, and biological dimensions of emotion.

Cognitive Science

A large body of research on emotions can be found in psychology, with an emphasis on cognitive and clinical, but also on social psychological theories. Yet, the predominant perspective is the intraindividual perspective (Miller/Leary 1992: 202). The findings of the diverse theoretical and empirical works are too extensive even to be summarized here, nevertheless, we will briefly outline central topics and conceptual models on which considerable consensus has been achieved. One of the most prominent and lively debated issues in psychology is the interaction of cognition and emotion, which is, basically, characterized by the question how much cognition (if at all) is necessary and sufficient for an emotion to occur, and how emotions, once occurred, influence cognition.

To begin with the last and more facile issue, largely unchallenged empirical evidence suggests that emotions decisively affect human cognitive processes and structures, in particular memory, attention, judgment, decision-making, and beliefs (Clore et al. 1994; Forgas 1995; Bless 2000; Schwarz 2000; Loewenstein/Lerner 2003).

The first issue, however, is far more difficult to tackle because it is fraught with conceptual pitfalls and is hard to come by empirically. Accordingly, it has been the center of vivid debate for more than a quarter of a century. Yet, this issue has been brought forward several steps by a series of findings in the neurosciences. In particular, lesion studies (though mostly in nonhuman animals) have shown that damage to certain areas of the brain that are known to be paramount in cognitive operations, i.e. cortical regions, leaves most basic emotional reactions intact (LeDoux 2000). At first sight, this evidence seemingly contradicts the position of Richard Lazarus (and other cognitivists) in the now classical debate with Robert Zajonc on the "primacy of affect". Lazarus (1984) had argued that some cognition in the minimal sense of the word has to be involved in the generation of emotional reactions, whereas Zajonc (1980) championed the view that "preferences need no inferences". Although Howard Leventhal and Klaus Scherer (1987) have discredited the discussion as foremost semantic and as a question of definitions, it revived with the increasing recognition of neuroscientific data in psychology (Oehman et al. 2000; Clore/Ortony 2000). This data, in all its variety, indeed suggests that emotions, or at least the more basic affects that are part of emotions, are processed in different networks of the brain, some of which operate without allowing conscious access, voluntary control, or even substantive cognitive involvement (Adolphs 2004; Cacioppo et al. 2004; Davidson 2003). This is also in line with the evolutionary view on human emotions as a system that existed before higher cognitive capacities could have evolved and that relates emotions to basic motivational states such as hunger, thirst, pain, and pleasure (Panksepp 1998; Rolls 1999).

Then, where is cognition involved at all? Advocates of the cognitive approach have proposed that what the neurosciences deal with are not emotions in the first place at all. Rather, they are presumed to investigate basic *affective* reactions as the field's labeling "affective neuroscience" aptly indicates. In this regard, cognitivists more recently have brought forward the claim that "[a]n emotion is not what happens in the first 120 milliseconds of arousal [. . .] An emotion is not the initial neurological reaction" (Solomon 2004: 19). It rather comprises considerably more than the basic affects investigated by neuroscientists, for example intentional (formal) objects, phenomenal feelings, action tendencies, and, above all, *appraisals*, i.e. interpretations of information in relation to their significance for the person. Appraisals thus assess the meaning of a situation against the background of the person's wellbeing (Roseman/Smith 2001). On these grounds in turn, appraisal theory, which is one of the most active fields of inquiry in emotion psychology today, has been harshly criticized for being overly cognitive and for disregarding automatic and unconscious physiological mechanisms. On closer inspection, however, the founders of appraisal theory already defined appraisals as operating automatically and unconsciously as well (Arnold 1960: 172).

Appraisal theories and empirical research have so far mainly concentrated on structural assumptions of appraisal and identified patterns of appraisal that are characteristic for specific emotions. In addition, a series of different appraisal

dimensions specifying what exactly is evaluated in appraisals have been proposed (Ortony et al. 1988; Smith/Lazarus 1993; Roseman/Evdokas 2004). Only more recently, a series of integrative attempts addressing the dispute over the interaction of cognition and emotion have formulated dedicated process models of appraisal that at least conceptually dissolve some of the contradicting evidence. In this respect, Gerald Clore and Andrew Ortony (2000) convincingly argue that the concept of appraisal might well be applicable to both, automatic and unconscious processes (reinstated appraisals), and deliberate and conscious processes (actively computed appraisals) alike. Leventhal and Scherer (1987), Smith and Kirby (2000), and Reisenzein (2001) hold similar views, in particular referring to schema theoretic approaches to reasoning and information processing to clarify different levels of automation. These models neatly explain how emotions derive from appraisals that concern both, the significance of information in terms of homeostasis and survival, and in terms of a person's plans, goals, beliefs, norms, and values, thereby covering biological, individual, and social aspects of wellbeing. What they miss out, however, are social structural aspects of appraisal and emotion that might be endorsed by sociological theories of emotion. Kemper's (1978) theory, which is, in fact, an appraisal theory, is a groundbreaking example in this respect. But also social constructionist approaches might equally well benefit from and amend appraisal theory, as can be seen from a critique of social constructionism by Kemper himself: "[I]f emotions depend on the interpretation of the situation, it seems that all who define the situation similarly ought to experience the same emotion. The problem, in part, comes down to whether or not it is possible to have a standard set of categories for defining situations which will link them logically and empirically with emotions. [. . .] The social constructionists provide no overarching framework of situations to which one may refer for the prediction of emotions" (Kemper 1981: 352–353). Appraisal theory might just be this very framework.

TOWARDS AN INTEGRATIVE APPROACH: THE SOCIAL COMPONENTS OF EMOTION

Resting on the necessarily very brief review of the different fields given above, we elaborate our proposal for an interdisciplinary approach to emotion and social structures by delineating some of the inherent, though often implicit and hidden social components of emotion and the references to the social environment within each of the disciplines we addressed above.

Sociality is a Common Issue

Cognitive science theories of emotion, even if they make strong concessions to the social environment, tend to neglect the fact that societies are more than just a collection or aggregation of the individuals constituting a social system. Social

systems possess specific qualities emerging from the different contingent social interactions taking place within such a system. To complicate things, these macro qualities and their causal origins often cannot be traced back to individual micro actions. An epitome of such emergent phenomena is Adam Smith's concept of the "invisible hand" that he used to explain the mechanisms of market coordination in view of independent, uncoordinated, and selfish actions. These "faits social" constitute major sources of influence on any actor's biological, cognitive, and emotion system—in other words: on the determinants of a person's overall behavior or—as Pierre Bourdieu would have put it—on the formation of an actor's habitus. What has become increasingly clear in recent years is the fact that social structural phenomena do not only affect social conventional behavior acquired by learning and during socialization, but, more profoundly, also the very biological makeup of the information processing architecture of the person. This has been extensively demonstrated, for example, in the area of socio-economic differences in, e.g., mortality and morbidity rates, immune system function, cardiovascular disease, suicide, and overall health (Durkheim 1897; Adler et al. 1994; Marmot 2004).

A thorough review of the literature across the different disciplines suggests to us that emotion might be a central interfacing mechanism in this respect, because it apparently receives input from all different levels affected by structural phenomena (physiological, cognitive, social) and generates (intermediate) output on all these levels (physiological, cognitive, behavioral), in turn re-affecting the structural phenomena. Emotions are thus influenced by social structural configurations directly (intentionally) and by the structures' profound impact on the neural and cognitive pathways underlying emotion. As we have briefly illustrated, the various disciplinary approaches to emotion each illuminate some of these social components of human emotions. Unfortunately, what is illuminated in its entirety rather resembles some tangled knot than well defined theoretical components. Since our aim is to find the hypothetical emotion-based reciprocal links between macro-aggregates and micro-acts, the proximate step in untangling this knot would be to further investigate the mechanisms by which the social environment affects the relevant components of an individual's information processing architecture. Next, we analyze in how far the social environment influences the cognitive processes and social representations operating on this architecture. Third, it is of interest how cognitive processes and representations become involved in communication and social interaction, and by bodily and verbal manifestation happen to be part of the social environment again. Fourth, and finally, we might conclude how social behavior in turn interferes with the domain by which it was shaped: the social environment.

Social Neuroscience

The impact of sociality on micro-level emotion mechanisms is best illustrated by two examples. One is the interplay of reason, emotion, and rationality (and

ultimately social behavior); the other example is the plasticity of neural circuits involved in emotion processing. There is some evidence, empirical and theoretical, that rational decision-making in means-ends issues serving outcome oriented behavior can hardly be achieved by our traditional understanding of reasoning alone. As it seems, emotions play a crucial role, at least in purportedly rational decisions serving socially oriented purposes and personal future outcomes (Damasio 1994). In addition, conceptual demurs on this issue have been remarked (De Sousa 1987; Evans 2002). The most vivid proponents of the view that emotions guide or rather enable efficient reasoning in complex social tasks are Antonio Damasio, Antoine Bechara, and associates. In a series of functional imaging studies, they investigated patients with bilateral damage to specific regions of the prefrontal cortex (predominantly ventromedial and orbitofrontal) (Bechara 2004; Bechara et al. 2004). These patients had developed severe impairments in personal and social decision-making, although they had otherwise largely intact cognitive intelligence, executive functioning, memory, and perception (Bechara 2004). In addition, they generally showed an impaired ability to subjectively experience, express, and interpret emotions (Damasio 1994; Bar-On et al. 2003). The investigators developed what they dubbed the "somatic marker hypothesis", in principle hypothesizing "a link between the abnormalities in emotion and feeling of these patients and their severe impairment in judgment and decision-making in real-life" (Bechara 2004: 30; Damasio 1994). Although the hypothesis has been tested empirically (Bechara et al. 1997; Bar-On 2003; Bechara 2004), it has been at the center of notable criticism (Panksepp 2003).

Be that as it may, the idea of somatic markers as a biasing device that guides human reasoning and deliberation by reducing alternative options and emotionally marking appropriate and inappropriate options under certain circumstances, is important for our approach (Damasio 1994: 170–173). What is of paramount interest to the sociology of emotions and to our aims here is the fact that somatic markers are apparently not biologically predefined or hard-wired in the emotion and memory system, rather they are acquired during socialization and through learning by "connecting specific classes of stimuli with specific classes of somatic state" (Damasio 1994: 177). These markers might actually be located in cortical regions but do rely on subcortical, probably amygdaloid structures and nucleus accumbens, that add valence and salience to a stimulus and integrate information from different neural circuits (Wagar/Thagard 2004). Somatic markers therefore are supposed to be hardly alterable or volitionally controllable mechanisms, by which the behavioral and cognitive structures of a social environment, as described above, are impinged upon an individual's information processing system, particularly in primary socialization but also later in ontogenesis. By provoking specific emotional reactions to specific classes of stimuli (real or imagined), somatic markers might promote specific behavioral traits and options to decide and act, also of apparently non-emotional character. These traits and decision-making tendencies,

we presume, roughly resemble the characteristics of the social environment an individual is part of.

The other example announced above is more hypothetical and relates to work in the neurosciences suggesting that the very basis of cognition and emotion, the biological structure and functional development of certain brain regions (or the brain as such), is affected by social environmental conditions (Brothers 1997). These findings, although mainly reflecting animal studies and investigations on the cell and molecular levels, propose that highly probable and recurring events, as experienced especially by infants and adolescents in stable social structures, hold decisive information required for the effective sculpting and molding of the brain and the nervous system (Cynader/Frost 1998; Eisenberg 1995). This neuronal plasticity refers to the possibility of structural and functional changes with experience on the brain level. There is unchallenged evidence that experiences, especially in tightly recurring circumstances and contexts, can produce (dissociable) changes in, e.g., dendritic length, the formation of synapses and synaptic connectivity, and in metabolic activity. It is crucial for our analysis that these alterations on the anatomical level do indeed correlate with differences in individual behavior (Kolb/Whishaw 1998). Furthermore, animal studies indicate that emotional experiences in particular contribute to changes in synaptic organization (Bock/Braun 1998).

However, we know of no studies, empirical or theoretical, systematically investigating either the relationship between actor's social structural affiliations (in terms of, e.g., class or socioeconomic status) and differences in brain development, or the susceptibility of the neural circuits particularly involved in emotion processing to experiential changes and their effects on actual differences in emotion processing. Without being able to further investigate these issues here, we allow us to hypothesize that there are regularities in these changes correlating with social structural patterns. It is apparent to us that social environments imprint specific facets of biological development, information processing and (emotional) behavior. The findings illustrated above and considered in relation to the sociology of emotion suggest a picture of micro-macro linkage that might be fundamentally based on the neural underpinnings of emotion. The results are also fruitful and illuminative for sociological research not directly concerned with problems of micro-macro linkage. For example, Hartmut Esser's most recent elaboration of his theory of subjective expected utility, which is located in a micro-macro framework, surprisingly clearly resembles key features of somatic marker functioning. According to Damasio, somatic markers are mechanisms capable of connecting categories of social knowledge (which are socially learned and modified by individual experience) with the neural "machinery of primary emotions" (Damasio 1994: 177). Esser, on the other hand, focuses on collectively shared cultural models and social representations of standardized situations ("classes of stimuli" in Damasio's parlance). The framing of these situations, i.e. their definition according to the actual presence of expected significant symbols contained within this

situation, facilitates the recall and the activation of a cultural model and a representation of this situation (Esser 2004: 97). In view of affective reactions, significant symbols are emotionally valenced stimuli, e.g. a clenched fist or a crying child (Esser 2004: 99), that trigger the corresponding models, representations, and behavior.

Surely, neuroscience and sociology use a very different vocabulary here, but their explanations and interpretations of decision-making and behavior that is not facilitated by conscious, reflective, and deliberative thought in the first place, strongly resemble one another. Consequently, what has been formulated in the sociology of emotions, for example by Kemper (1978) and Collins (1984), as well as in general social theory, for instance by Elias (1939) and Bourdieu (1977), might find its more biological foundations in the affective and social neurosciences. On the other hand, social neuroscience is well advised to take into account theories scrutinizing large-scale processes in order to prepare the ground for interfacing social and societal processes on the brain level.

Social Cognition

As we have outlined above, there exists in fact an undisputed interaction of cognition and emotion. Although the specific nature of this relation is still somewhat at issue, we have identified the appraisal paradigm as the most prominent and consensual approach at present. Because of the proposed tight connection between cognition and emotion, both seem only to be conceptually and perhaps anatomically separable, but not functionally. Obviously, there is no zero-line emotion or cognition state, unless in pathological cases, and thus behavior is neither solely cognition-driven nor solely emotion-driven. In the preceding sections we have argued that social environments may imprint emotional responses bypassing higher cognitive processes and structures that usually assist in social conventional behavior. At the same time, however, there is ample evidence that the same is true for the cognitions involved in emotion. Without going into further details of appraisal theory here, we would like to remind the reader of the structural assumptions and the relational character these theories exhibit. Appraisal dimensions constitute the background against which occurring events are appraised and evaluated. Appraisal dimensions, for example goals, plans, attitudes, norms, and beliefs, constitute one of the two end points of the relation that is established by an appraisal process: the cognitive structure responsible for uniquely assessing an event (or act or object) (Ortony et al. 1988).

Surprisingly, most appraisal theories conceptualize cognitive structures as an independent, unchanging, and stable input to an appraisal process, whereas the eliciting event is assumed to be the dynamic input. However true that might be, the sociologist simply cannot be comfortable with the supposition that cognitive structures are stable and unchanging phenomena, and fortunately also some other

appraisal theorists agree on this uneasiness (Ortony et al. 1988; Clore et al. 1994). Sociological research has presented ample evidence that cognitions and cognitive structures/content in particular, are subject to societal affairs (Mannheim 1929: 227–267; Berger/Luckmann 1966; Zerubavel 1997; Turner 2002; Lizardo 2004). This has been mirrored on the (social) psychological level by empirical and theoretical studies in social and socially shared cognition (Hutchins 1991; Macrae/Bodenhausen 2000; Bless et al. 2004). The role of socially distributed cognitions in emotion has been investigated in an innovative contribution by Keith Oatley (2000), however, we will concentrate on the role of social cognition in emotion and its implications for the aims of this article.

How individuals select, interpret, and use (social) information to make judgments or decisions about the social world is a crucial issue in emotion research and has been investigated on various levels (Adolphs 2001; Bless et al. 2004). One of the central concepts in social cognition is the schema, a collection of related beliefs used to organize knowledge about and incoming information from the (social) world. In the majority of cases and in particular in largely automated everyday behavior, reasoning, decision making, and action are, beyond controversy, based on the applied schemas rather than on raw information from the perceptual systems. What makes schema theory particularly interesting for our approach is the fact that schemas are based upon past experiences and are socially learned and internalized. In this respect, we suppose, in accordance with cognitive sociology and the sociology of knowledge, that individuals with similar social structural affiliations are likely to acquire and use similar schemas.

Thus, when appraising an event that has activated a schema, the appraisal process, from which emotions arise, might be based on schematic processing, as demonstrated by the process theories of appraisal mentioned earlier (cf. Manstead/Fischer 2001). Therefore it seems reasonable to conclude that occurring emotions in some cases do not reflect an individual's response to the objective features of an event, but rather to the activated schemas, resulting in schematic emotions. The idea of schematic emotions has been elaborated in more detail by Susan Fiske (1982) and Rainer Reisenzein (2001). Reisenzein likewise discusses the idea that most schemas in fact already contain appraisal outcomes, so that there is no more need to actively compute an appraisal in case a schema has been activated. This process of appraisal schematization is even more interesting since appraisal outcomes, as suggested by Reisenzein, are rarely computed individually, rather, they are transmitted and acquired in societal contexts in the same way as, say, beliefs, attitudes, and, more general, knowledge (Reisenzein 2001: 197).

Since a defining feature of a social structural configuration, according to the paradigm we chose to follow, is the sharing of similar cognitive structures, there is a high probability that individuals embedded in the same social structural configurations share large portions of their cognitive schemas. We thus conclude that emotions based on schematic appraisals reflect key structural characteristics of the social environment. It is furthermore plausible to assume that actions

guided by schematic emotions fundamentally contribute to micro-macro dynamics either by supporting the autopoiesis and self-organization of a social system, or by promoting the instability of a system in cases of far reaching inconsistencies.

SOCIAL CONTROL THROUGH EXPRESSION, CONTAGION, AND REGULATION

We have so far dealt with the neural and cognitive underpinnings of emotions and their possible consequences for social structural dynamics, thereby omitting one of the most striking features of emotions, namely their expressive, contagious, and regulative interindividual functions, which we consider to be crucial social control operators. Let us elaborate: There is consistent evidence that the expression of certain emotions or at least of some specific response components of, for example, anger, fear, enjoyment, sadness, and disgust—the infamous "basic" emotions—is distinctive and universal among the human species (Ekman 1993). The expression of other emotions, sometimes dubbed social or self-conscious emotions, such as shame, guilt, grief, or embarrassment, does not seem to be universal, although patterns of expression are highly consistent within a socio-cultural setting. It seems that in whatever way the different expressions of these emotions may have evolved, as long as individuals stay in the cultural or social structural setting they were socialized in, they are on the safe side when it comes to interpreting emotion expressions. Thus, emotion expressions are a potent signaling device capable of conveying clues that allow the mutual attribution of underlying feeling states. Moreover, emotion expressions also allow the inference of other corresponding mental states that are constituent for the emotion expressed (Horstmann 2003). These attributions function as mechanisms that reduce social complexity and intercept double contingency circuits. They furthermore allow foreseeing the consequences of an emotion for individual behavior, the course of an interaction, and the overall group behavior. In view of appraisals, the verbal and nonverbal communication of emotions (and underlying appraisals) is one of their main interactive functions, because it allows inferences about each actor's assessment of a present event (Reisenzein 2001).

Despite these expressive functions of emotion, presupposing the existence of unmodified and somewhat "basic" expressive response components, there are others who righteously ask if emotion is "ever not regulated" (Gross 1999: 565). We, of course, embrace the idea that emotion regulation is part and parcel of emotion elicitation and that, in some way, emotions are always regulated—this should be one of the essences of the previous paragraphs. However, we also endorse James Gross' (ibid.) view that this question is a little misleading in that it suggests an all-or-none affair. In view of what we have said before, it is evident that there are different levels of regulation, neural, cognitive, and social, that allow for different degrees of volitional access to one's emotions (Ochsner et al. 2002). Sociological and social psychological research in the field of emotion expression

and regulation have, above all, revealed volitional strategies actors may use to deal with their emotions and emotion expressions. Arlie Hochschild (1979) for example found that feeling rules prescribe what is supposed to be felt in a specific situation, and what emotions are expected to be on display. Expressing the appropriate, i.e. the socially expected emotions, is mandatory for an individual to be socially accepted and to receive social gratification. Emotion work, or coping, is volitional cognitive effort to regulate and modulate both, the actually felt emotion and the facial and bodily display of the emotion, regardless whether the emotion on display is in fact felt or not (Gross 1999).

Furthermore, both, voluntarily and involuntarily expressions are subject to social judgment. Depending on the feeling rules valid in a situation, an expression will be interpreted as either adequate or inadequate. Expressions considered inadequate signal that the individual expressing and probably also experiencing this emotion does not conform, mentally and behaviorally, to what is socially expected. To enforce adequate behavior, deviant individuals will be subjected to severe punishment, whereas emotions constitute one means to carry out these sanctions (Fehr/Gaechter 2002). By expressing anger or contempt, for example, actors denounce deviant behavior and violators are supposed to experience negative emotions, probably shame. Shame is exceedingly important in this respect, because it has been shown that one of the primary functions of shame is to signal threats to the social bond (Scheff 2003). In this regard, Jon Elster has convincingly demonstrated that the expression of contempt and the experience of shame are usually more effective than the material aspect of sanctions, since "[t]he material aspect of the sanction that matters is *how much it costs the sanctioner to penalize the target*, not how much it costs the target to be penalized" (Elster 2004: 44; italics original). Thus, the higher the costs for the punisher, the stronger the violator will recognize the contempt and in consequence feel shame. Contrary to what is often stressed, the importance of feeling rules in our opinion is not only to be found in the requirements and demands for norm compliance. Even more importantly, feeling rules ensure the suppression of emotion expressions that could otherwise indicate deviating appraisals and corresponding actions tendencies towards other individuals through verbal and nonverbal channels. Chances are that deviations in emotion expression within a social unit might disrupt coherence and decrease chances for successful negotiations, cooperation, collective action, or coalition-formation (Frank 1988; Lawler et al. 2000).

Further evidence on the issue of social control derives from studies on emotional contagion, suggesting that emotion expressions are highly contagious (Hatfield et al. 1994). Emotional contagion obviously not only happens by acquiring appraisal outcomes as illustrated above, but instead relies on neural and physiological mechanisms still largely unexplored. For emotion expressions to have contagious effects, the sensory perception of an expression in some cases seems to be sufficient (Chartrand/Bargh 1999; Neumann/Strack 2000). Emotions elicited by a contagious stimulus influence cognitions and physiological reactions in affected

subjects probably in the same way as in the originating subjects or in solitary emotion elicitation, respectively (Dimberg/Oehman 1996). It seems plausible to assume, then, that emotional contagion acts to adapt individuals' physiological and cognitive status to the actual demands of an event, as signaled by other actors.

To us, the mechanisms illustrated clearly indicate how emotions perform a reciprocal social control function: on the one hand as a norm-enforcement operator and a sanctioning mechanism, on the other hand as an indicator that an individual's appraisal of a situation might not be concordant with the appraisals of other individuals. In view of the micro-macro link it seems reasonable to conclude that social norms, as qualities of social units, and in combination with emotions, promote social control by in turn enforcing (other) social norms and by regulating behavior. However, the functions of emotion-based social control have already been extensively examined by Norbert Elias (1939/1987). But this is by no means the only linkage to general social theory. Therefore, we establish further connections to the theory of Pierre Bourdieu (1977) in order to widen the scope of our approach and to link it to concrete proposals for foundational problems in sociology.

LINKAGES TO SOCIAL THEORY

After having outlined the basic assumptions of our interdisciplinary approach to emotions and social structures, we briefly explore possible linkages of this approach to some central aspects of two selected sociological grand theories: those of Pierre Bourdieu and of Norbert Elias. We have selected these theories, because they also deal with the issue of emotions more or less extensively, and relate them to their main objectives, either implicitly or explicitly. Yet, they are far from properly conceptualizing emotion. Moreover, we have previously deconstructed these theories to understand and model human behavior in the context of social science simulations and human-computer interaction (von Luede et al. 2003; Moldt/von Scheve 2001; von Scheve/Moldt 2004).

One central subject area in the work of Pierre Bourdieu is his habitus-field theory, in which he addresses problems closely related to the micro-macro link (Bourdieu 1977). According to Bourdieu, the relationship between the habitus and the logic of practice is crucial in understanding micro-macro dynamics. The habitus presupposes a cultural and social habitat that becomes internalized in the form of behavioral dispositions to think, to reason, to perceive, and even to feel in a certain way. The habitus can be seen as a set of socially determined bodily and mental dispositions that lack representational content and therefore seldom reach conscious awareness. If this nevertheless happens, for example through major changes in an actor's field or a personal crisis, not the habitus itself is atomized into a set of mental representations, i.e. specific beliefs, desires, or intentions, but rather an actor forms beliefs *about* the habitus (and this belief-formation

is again based on habitual reasoning). Where does the habitus come from, then? The habitus can be seen as the incorporation and internalization of the "logic of practice" and probably is of cognitive origin (Bourdieu 1998: 48–52; Lizardo 2004). The logic of practice is a property of the social field within which all human behavior takes place. Basically, social fields are arenas of the struggle for resources, mainly characterized by vertical stratification. They operate by various strict mechanisms and rules which, taken together, form the logic of practice. The logic of practice defines the "borders" of a social field by issuing explicit and specific rules. Individuals who have incorporated the logic of practice of a specific field provide a practical acceptance of the practical logic of this specific field, and thereby reproduce this very logic via the habitus. This way, a social field controls the behavior of the individuals constituting this field and, vice versa, the habitus stabilizes its field, i.e., the field that originally produced this very habitus.

As this very brief summary of Bourdieu's basic concepts indicates, the micro-macro dynamics described therein roughly resemble the dynamics illustrated in our proposed approach to emotion and social structures. In view of the emergence of habitual behavior, the cognitive components and neural underpinnings of emotion seem to be particularly relevant, whereas in view of the logic of practice and the dynamics of social fields, the regulation and control of emotion through norms and sanctions deserves special attention. The integrated approach to emotion we presented in the preceding sections might well serve as a neurocognitive foundation for some selected aspects of the habitus-field theory (cf. also Lizardo 2004).

In a similar fashion, we further suggest connections to Norbert Elias' theory of the civilizing of emotions. One central aspect of Elias' (1939) theory is the exertion of social control through norms and emotions, tightly interlinked in turn with the reproduction and maintenance of social norms (Elias 1987). According to Elias, any coherent social group can be characterized by the struggle for status, power, prestige, social success, and appreciation. This rivalry may lead to anxiety about possible losses of social resources (cf. von Luede et al. 2003). Elias assumes that anxiety in this respect is inherent to the human species and can be traced back to attachment behavior in mother-infant relationships. Anxiety drives individuals in a social unit to constantly monitor other individuals' behavior in order to estimate one's own position in the social order relative to those of others. Knowledge of the positions of other individuals gives rise to efforts to maintain or even improve one's own position.

Crucial for the position in the social order is the willingness to comply with prevailing norms, whereas deviant behavior may be punished by the withdrawal of social resources. This in turn leads to negative emotions such as fear, shame, or sadness. On the other hand, a punisher will also show negative emotions, probably anger or contempt, to express discomfort with the offender. Both, loss of resources and negative emotional expressions may again have emotional consequences for the deviant individual: shame and embarrassment are the main emotions that—according to Elias—exert social control. Control, then, results in

social bondage ("Fremdzwang") creating mental bonds which tie an individual to the setting and configuration of a specific social unit (cf. Scheff 2003). Fear of loosing social gratification may transform social bondage into self-bondage, i.e. volitional behavior regulation in order to comply with prevailing social norms ("Selbstzwang"). This way, norms are enforced and their enforcement leads to the reproduction of a social norm. These mechanisms described by Elias are largely validated and backed up by sociological and social psychological theories of emotion, for instance by Thomas Scheff (1997/2003).

What has not yet been done is the further examination of the role of emotions per se as a general indicator of deviant behavior. In the works mentioned above, deviance is defined as overt behavior that clearly and visibly violates specific norms within a social unit. However, when one relates Elias' theoretical findings to the approach proposed in this article, it is obvious that already the display of an emotion in an interaction situation may indicate that an individual's appraisal of a situation is not concordant with that of other participants. Consequently, to realize that someone else has appraised a situation differently from common social expectance, it is probably sufficient to perceive and interpret this person's emotion expressions—obvious norm-violating behavior is not necessary. We assume that, according to appraisal theory, emotions reflect the perception and assessment of an event. In coherent groups, as explained, individuals constantly monitor each other's behavior to ensure norm compliance and to prepare eventual sanctions. Emotions are a timely indicator of overt deviant actions that might be carried out and could disrupt group coherence. Emotions therefore allow the interception and regulation at a stage where possible (and probably socially malicious) future actions have not yet been implemented. Therefore, the expression, perception, and judgment of emotions operate as a control structure on top of the neurocognitive components and their relation with social structural configurations. Emotional feedback, sanctions, and norms illuminate what has been (unconsciously) impinged upon individuals in infancy and socialization.

TOWARDS EXPLAINING THE MISSING LINK

We have outlined an approach towards an integrative and interdisciplinary theory of emotion and social structures, accounting for the neural as well as the cognitive bases of emotions. We have illustrated that disciplines with a long tradition in research on emotion or those deploying new technical methods, provide theories and models of emotion addressing issues that are of paramount interest also in sociology. For example, questions concerning the role of emotion and rational behavior, decision-making, social interaction, and communication. According to our assessment of the relevant literature, probably most interesting for the sociologist is the fact, that quite a lot of theories from neuroscience and cognitive science make references to the social environment. In these theories, however, society is

an important, although conceptually underdeveloped component. Sub-disciplines and research areas such as social neuroscience and social cognition clearly state this connection in their mission statements and issue offers of cooperation to sociologists. In this article, we have accepted the offer and linked some of the conceptual issues in cognitive science and neuroscience to the problem of micro-macro dynamics in sociology. We have illustrated that emotions could be a key component in the micro-macro link as a bi-directional mediator between individual action and social structures. This emotion-based linkage has in some cases already been implicitly postulated by other social theorists, e.g., Norbert Elias and Pierre Bourdieu. They describe certain aspects of micro-macro linkage that strongly resemble the emotional mechanisms described in this article, either by directly referring to them (Elias 1978) or by describing overt behavior that might be based on emotions (Bourdieu 1977). We have no doubt that there are more and other linkages to existing social theories, in particular, of course, to sociological theories of emotion. First steps toward an integrative sociological theory of emotion have been made in this article, outlining an explanation of the missing link of micro-macro interdependence in society and social theory. Therefore, the further elaboration of this explorative approach seems to be a most promising endeavor.

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