Scientific Report

Expert Meeting in Jerez de la Frontera, Spain (May 17-20, 2007)
"Social Cognition and Social Rationality: How Environmental Problem-Structures Constrain Judgments and Decisions"

Conveners: Klaus Fiedler & Peter Freytag (University of Heidelberg)

Summary

This expert meeting aimed at exchanging and integrating theoretical and empirical progress in what might be termed cognitive-environmental approaches to social cognition. In particular, these approaches address multi-level problem structures that are quite typical of a complex, probabilistic world but that evade the domain of static rationalist models. A crucial feature of these problems – which represent the ultimate graduator of social rationality – is that different solutions are “correct” or appropriate at different levels of analysis. Typical examples include delay of gratification problems and dilemma games (with opposite payoff structures in the short run and in the long run) as well as ecological correlations and Simpson's paradox (reflecting different causal relations at the group level as opposed to the individual level).

The expert meeting in Jerez attracted a number of the most prominent researchers in the field, who have contributed to the recent progress of cognitive-ecological approaches to judgment and decision making. Altogether, 11 scientific papers were presented by these scholars, revolving around several major topics of contemporary research on social rationality: sampling models of judgment and decision making, game-theoretical approaches to complex social problems, context influences on social judgments, pseudocontingencies, and meta-cognitive myopia. Many papers referred to computer-simulation results in addition to experimental evidence on the behavior of human judges and decision makers. A large proportion of the conference time was used for plenary discussion and informal exchange between individual scientists.

All conference attendants expressed their satisfaction with the expert meeting and its success in convening research groups and paradigms that call for integration and coordination. The papers presented in the conference shall be published in a journal, preferably in a special issue devoted to the same topic as the Jerez conference. Moreover, several review articles are being planned by subgroups of the conference participants. An email network will be established to facilitate exchange of new papers, graduate students and post-docs, and to encourage joint activities on international scientific conferences.

An excursion to the 3000 years old city of Cádiz deserves to be mentioned as an impressive cultural activity.

Description of the Scientific Content

The following description of the scientific contents is based on edited versions of the abstracts of the papers presented on the expert meeting. For presentational purposes, the contributions are grouped by thematic clusters.

Introduction and Integrative Overview

Social Cognition and Social Rationality:
How Environmental Problem-Structures Constrain Judgments and Decisions
Klaus Fiedler & Peter Freytag, University of Heidelberg, Germany

The title of this introductory talk is identical with the title of the entire expert meeting. Its purpose is to spell out the scientific theme that underlies the conference and to outline a theoretical framework within which the various papers can be organized. We first provide some background information about the funding organization, the European Science Foundation in general and ESCON (European Social Cognition Network) in particular. Against this background, it should be possible to recognize the goals and functions of the expert meeting as well as its potential follow-up activities.

Turning to the scientific topic itself – a cognitive-environmental approach to judgment and decision making – we point out (with reference to pioneers like Lewin and Brunswik) that in order to understand the psychological processes within the individual's mind, it is first of all necessary to understand the structure of the physical, social, and informational environment that impinges on the individual's mind. Although this important insight has long been ignored in psychological research and theorizing, some notable and exciting new approaches have begun to illuminate the creative interplay of cognition and the environment. Many of these novel contributions have been published in prominent places and found support and applause by leading scientists. However, the ecological approach to social cognition is still considered exotic and difficult to digest, and it is virtually missing from major textbooks, empirical mainstream journals, and academic curricula. We believe that this imbalance between the innovative potential of the cognitive-ecological approach and its actual impact on current psychology reflects a lack of integration and a paucity of contact and exchange among the scientists involved in this endeavor. On one hand, these scientists are distributed over various sub-disciplines of psychology, such as cognitive, social, economical, and organizational psychology. On the other hand, they represent diverse and disconnected theoretical and paradigmatic traditions. Thus, the first and foremost purpose of the expert meeting is to convene and to integrate various recent research initiatives that have tackled the impact of environmental constraints on judgment and decision making.

At the meta-theoretical level, one may distinguish between sampling approaches that emphasize the gathering and filtering of decision-relevant data and designing approaches that focus on the logical structure or "study design" imposed on a decision problem. Within both theory classes, one can further distinguish between assimilative and accommodative approaches, depending on whether the mind or the environment dominates the interaction, that is, whether the mind can assimilate the environment to its internal structures or has to accommodate to strong external constraints of the stimulus world. The two-dimensional framework resulting from these two distinctions is well-represented in the scientific contributions of the conference participants.

The remainder of this introductory talk is devoted to a preview of the various papers that will be presented during the conference, as briefly discussed with reference to the depicted framework.

Sampling Approaches to Judgment and Decision Making

Sampling Filters in Learning from Experience
Jerker Denrell, Stanford University, USA

Decision makers learn from experience but not all experiences are equally available. For example, unless an individual samples an alternative again, no new information about this alternative may be

available. Unless alternatives are sampled randomly, the available sample as well as inferences based on this sample may be biased.

In most contexts, the sampling process is not random. Rather, the probability of sampling an alternative depends on the decision makers experience with the alternative and the exact sampling rule used. Consider, for example, an alternative that a decision maker has had negative experiences with. If the decision maker avoids this alternative in the future, he or she would be unlikely to correct any false negative beliefs about this alternative (March, 1996; Denrell & March, 2001; Fazio, Eiser, & Shook, 2004; Denrell, 2007). It is possible, however, that the decision maker might nevertheless continue to sample this alternative or receive information about it from others. In a series of papers I have illustrates how such influences on the sampling behavior of individuals can have a systematic effect on belief formation.

In group bias in Impression Formation: The tendency to avoid future interactions with individuals one has a negative impression of can explain why individuals have more favorable evaluations of ingroup members (Denrell, 2005). If individual A has a negative impression of B, A is unlikely to interact with B and change his or her impression. If B is a friend of A's friends, however, A may nevertheless meet B again. As a result, A's negative impression might change, which might not have happened if B was not part of A's social network.

Social Influence: Learning often occurs in a social context which influences the sample of information available to learners. For example, if A and B are friends and B likes a restaurant, A may sometimes join B there even if A have a negative impression of this restaurant. Such influence over sampling behavior can lead to a social influence effect (Denrell and Le Mens, forthcoming). Even if the experiences of two individuals, when they attend the restaurant, are independent random variables, their attitudes will become positively correlated if their sampling processes are interdependent.
Illusory Correlations: An important implication of this paradigm is that the way in which decision makers jointly samples alternatives or attributes can influence beliefs about correlations. If a decision makers gets to observe A whenever he samples B, the beliefs of the decision maker about A and B can become positively correlated, even if A and B are independent. This has implications for how beliefs are formed about multi-dimensional alternatives and can help to explain halo effects.

Selective Feedback: On Moderators of Meta-Cognitive Myopia
Peter Juslin, Uppsala University, Sweden

Recent studies on judgment, largely inspired by the work by Fiedler (2000), emphasize that biased judgments may arise, not primarily from heuristic processing of the proximal samples of information that people have available, but from accurate description of these samples together with a "meta-cognitive myopia" or "naivety" with respect to the sampling constraints and the sophisticated properties of the samples (see Fiedler & Juslin, 2006; Juslin, Winman, & Hansson, in press). Yet, despite the demonstrations that people often interpret their proximal samples with striking naivety, it is also clear that people are not completely encapsulated in their "personal samples". Working as a professor, for example, need not entail a belief that most people are PhDs or students, although most people encountered in a day belong to these categories. In order for this research program to become informative, then, it needs to define the bounds of this naivety, and the processes by which we transcend our personal samples.
In this study we address this issue in the context of learning from *selective feedback* (Einhorn & Hogarth, 1978). In principle, selective feedback may be contingent on *ones' actions*, as when a personnel officer only get to know about the performance of those that are admitted to an education, or contingent on *external events*, as when a general physician only gets to know about those patients that did not get well from a treatment. We investigate the extent to which people can transcend their personal, selective, and biased samples of observations, given selective feedback that is either contingent on the decision or the actual outcome.
Results from experiments with a simulated personnel recruitment task shows that performance is only moderately affected by feedback that is selective conditional on ones´ own actions, and learning and confidence is relatively unaffected despite very selective and biased feedback. By contrast, feedback conditional on the outcome is associated with extreme "meta-cognitive myopia", despite that the contingency is extremely salient, in effect transforming the task into a task with selective feedback

(e.g., if you know that you only get feedback for recruited applicants that proved successful, you can infer that those for which you did not get any feedback were not successful). There is thus poor learning and extreme overconfidence. In the conditions with feedback conditional on outcome, the participants that only received feedback for suitable applicants adapted as if the base-rate of successful candidates was extremely high, the participants only receiving feedback about unsuitable applicants adapted as if most applicants were unsuitable (the true base-rate was 50/50 in both cases). The results suggest that we may be better prepared to accommodate the effects of selective feedback when it is contingent on our own actions, presumably a more frequent condition for learning both in our personal history and the history of our species. By contrast, we can be highly susceptible to the effects of selective feedback when it is contingent on exogenous events, even when the contingency is highly salient, or even superficial in nature.

Choosing Between Adaptive Agents:
Some Unexpected Implications of Level of Scrutiny
Yaakov Kareev, Hebrew University of Jerusalem, Israel

Even with ample time and data at their disposal, people often make do with small samples, which increases their risk of making the wrong decision. A theoretical analysis indicates, however, that when the decision involves continually selecting among competing, adaptive agents who are eager to be selected, an error-prone evaluation may be beneficial to the decision maker. In this case, the chance of an error can motivate competitors to exert greater effort, improving their level of performance—which is the prime concern of the decision maker. This theoretical argument was tested empirically by comparing the effects of two levels of scrutiny of performance. Results of three experiments show that minimal scrutiny can indeed lead to better performance than full scrutiny, and that the effect is conditional on a bridgeable difference between the competitors. Two further experiments demonstrate that, in cases in which the total available resources (i.e., potential effort) are limited, level of effort actually exerted and the allocation of effort between different areas are also affected by level of scrutiny. Thus, people are obviously sensitive to level of scrutiny. We conclude by pointing out that small-sample based, error-prone decisions may also maintain competition and diversity in the environment.

Designing Cognitive Representations of Multi-Level Problem Situations

Multi-Level Problems in Judgement and Decision Making: Simpson's Paradox, the "Correlated" Prisoner's Dilemma, and Newcombe's Problem
Nick Chater, University College London, United Kingdom

This talk considers how far a range of interesting phenomena, including some so-called paradoxes in decision making, can be understood as involving a clash between levels of analysis. I begin by discussing Simpson's paradox, the classic multilevel clash: here, in each of two states, option A is better than option B. But option B seems to be better overall. This paradox may be a partial explanation, among many, of why people persist in cooperating in one-shot Prisoner's Dilemma encounters. This is because exogenous factors in the environment may lead to correlated behaviour between participants. If situation tends, for whatever reason, to encourage one person to cooperate, then those same conditions are likely to have a similar impact on the other person; and similarly for defection. This correlated pattern of C and D responding can lead to the apparently paradoxical result that people can obtain, on average, higher rewards from playing C, than from playing D. This is because C typically results in a CC outcome; and D tends to result in a (worse) DD outcome. Thus, overall C has higher average payoffs. But D is better, if the other plays C; and it is also better if the other plays D.

I describe some empirical results, with Ivo Vlaev, showing how this paradox can arise experimentally; and also outline a simple reinforcement learning model, which exhibits this behaviour. Finally, I consider Newcombe's celebrated 2-box problem. Here, we can argue that whatever is in Box 1, choosing both boxes yields higher payoff; but, overall, choosing both boxes leads to a drastically lower pay-off (because the omniscient being postulated in the problem will leave the first box empty of its enormous prize, if it forsaw a greedy two-box response by the player). I note that Newcombe's problem also arises in a 'identical twin' PD game. That is, you play PD against a copy of yourself and

hence can only receive CC or DD outcomes. Thus, if you twin plays C, you should play D; if you twin plays D you should also play D. But overall, you should play C, because you obtain the CC rather than DD outcome. The empirical set-up described above can be viewed as probabilistic version of this set-up (where people are not identical, but similar). I finish by exploring some conflicting normative intuitions about these cases.

How Categories Shape Causality (And Vice Versa)
Michael R. Waldmann & York Hagmayer, University of Göttingen, Germany

Causal learning can take place on different levels at once. On the lowest level we encounter tokens of events following each other. However, to make causal inferences and apply our knowledge to future cases, these tokens need to be categorized into classes of events. Categories allow us to make contact with previous knowledge when encountering new instances of causal relations.
Traditionally research about the representation of causal relations and research about the representation of categories were separated. This research strategy rests on the assumption that categories summarize objects or events on the basis of their similarity structure, whereas causality refers to relations between causal objects or events. Our goal in the present research is to show that the relationship between causality and categorization is more dynamic than previously thought.
The standard approach guiding research on the relationship between categories and causality views categories as reflecting causal relations in the world (i.e., "theory" theory). We provide evidence that the opposite direction also holds: Categories that have been acquired in previous learning contexts may influence subsequent causal learning. In several experiments we show that identical causal learning input yields different attributions of causal capacity depending on the pre-existing categories to which the learning exemplars are assigned. Thus, our causal knowledge is not merely a reflection of causal relations in the world; it is highly dependent on how the world is represented. Conceptual schemes play an analogous role to scientific paradigms. There is a strong tendency to continue to use old conceptual schemes rather than switch to new ones even when the old categories are not optimal for predicting the new effect, and when they were motivated by goals that differed from the present context of causal discovery. However, we also found that the use of prior categories is dependent on the match between categories and causal effect. Whenever the category labels suggest natural kinds which can be plausibly related to the causal effects, transfer to new causal learning was observed. When the categories were arbitrary, or could not be plausibly related to the causal effect learners abandoned the categories, and used different categories to predict the causal effect. The relation between categories and causality is not unidirectional. Categories do not only influence the outcomes of causal learning, we also showed that causal learning can form the basis for categorization processes. For example, when learners observe a cause along with uncategorized effect tokens, there is a tendency to form effect categories that maximize the causal contingency. Thus, categories are induced that optimize predictability in the domain. In a set of experiments we studied the question under what conditions these newly induced effect categories would be transferred to a new causal learning situation in which these effect events are causing further effects (i.e., causal chain). The findings show that assumptions about the underlying causal mechanisms are crucial for the transfer of induced categories to new episodes of causal learning. Categories were only re-used when the two causal links within the causal model were connected by a continuous causal mechanism.
In sum, the relation between categories and causality is bidirectional and dynamic. Categories and causality mutually depend on each other in a way reminiscent of normal science and paradigm changes in theory development.

Vicissitudes of Multi-Level Problems with Different Correct Solutions: Pseudocontingency, Simpson's Paradox, and Related Structures
Klaus Fiedler & Peter Freytag, University of Heidelberg, Germany

The present paper is concerned with one intriguing class of environmental problem structures that seem to call for different solutions when considered at different levels of analysis. An intriguing feature of these problems is that common normative models (e.g., correlations, Bayesian statistics, utility functions) are not easily applicable. In fact, for cognitive psychology to deal with these tricky problems, individuals first of all have to get rid of the premise that one optimal solution exists and to accept instead the insight that two or more correct solutions co-exist at the same time. This turns out to be an extremely demanding goal for what we refer to as "higher-order social cognition" (Fiedler &

Plessner, in press).

The prototype of these problems can be found in the phenomenon of ecological correlations. As delineated in Robinson's (1950) classical paper, the correlation between race and illiteracy can be close to zero when computed across individual persons, but extremely high when calculated at a higher level of aggregation. Thus the correlation between the proportion of Black people and the proportion of illiterate people per district can be in the range of .60 or higher, even when the individual correlation in the same population is negligible. In a similar fashion, the correlation between price and quality can be pretty low at the level of individual consumer products but substantial at the level of providers or markets. Or, the amount of money expended by the average consumer may correlate strongly and positively with the proportion of tourists across different towns, even though the individual-level correlation is negative; tourists may consume less than residents within all towns considered.

Apparently, two divergent and even contradictory correlations between the same two variables can be both correct. They simply reflect different causal forces or processes that exert their influence at different aggregation levels. The positive correlation of tourism and consumption at the level of towns reflects the attractiveness of the place. In contrast, the negative correlation within towns reflects the higher income of individual residents as compared to individual tourists. As the attractiveness of towns can vary independently of the income of people, even the sign of the ecological correlation and the individuating correlation can be different.

In Simpson's paradox (Fiedler, Walther, Freytag & Nickel, 2002; Schaller, 1992; Waldmann & Hagmayer, 1995), it is commonly assumed that people miss the ecological correlation between ecologies (e.g., towns) and that they are misled by the spurious individual-level correlation that ignores the differences between ecologies. In contrast, a new cognitive illusion called pseudocontingency (Fiedler & Freytag, 2004; Fiedler, Freytag, & Unkelbach, 2007) highlights an opposite bias toward the higher aggregation level, meaning that ecological correlations often override the perception of individual-level correlations.

We provide a review of recent research on pseudocontingencies as well as our earlier studies on Simpson's paradox. Interpreting these findings in the context of structurally similar multi-level problems – such as group decision making; dilemma games; or time-series analysis – we isolate boundary conditions that determine the resolution of multi-level problem structures. For a general rule, problems tend to be represented at that level of aggregation that is crucial for task feedback and reinforcement and that facilitates the encoding of information in memory.

Pseudocontingencies in Biased Judgment Formation: The Roles of Mutual Correlations Across Contexts and Skewed Base Rates Within Contexts
Thorsten Meiser, Jena University, Germany

In statistical data analysis, aggregation of observations across different subpopulations can produce spurious correlations that ostensibly indicate a functional dependence among cognitive processes or other psychological constructs (Meiser & Bröder, 2002; Meiser, Sattler, & Weißer, 2007). Likewise, in everyday inductive inference like judgment formation, the neglect of context factors that are related to (a) variables of target persons (e.g., ethnicity, profession, gender) and (b) some outcome variable (e.g., success, friendliness, crime) may produce spurious correlations between person characteristics and desired or undesired outcomes which can contribute to the formation and/or maintenance of biased stereotypes (Schaller, 1992; Schaller & O'Brien, 1992). In contrast to spurious correlations that rely on actual co-occurrences of two focal variables across different subpopulations or contexts, the term pseudocontingency denotes the inference of a contingency between two variables X and Y on the basis of information that does not provide sufficient evidence for any contingency, such as pairwise correlations of X and Y with a context factor Z (i.e., r_{XZ} and r_{YZ}) or marginal distributions of X and Y within contexts (i.e., $p(x|z)$ and $p(y|z)$ in the case of discrete variables) (Fiedler, 2000; Fiedler & Freytag, 2003, 2004; Meiser, 2006; Meiser & Hewstone, 2004). In my talk, I will present two experiments that analyzed the roles of pairwise correlations and skewed marginal distributions for pseudocontingencies in biased judgment formation. Participants had to draw inferences about the contingency between group membership and likeability in a scenario with a confounding context

factor. The observed judgments contradicted the factual contingencies between group membership and likeability within each context as well as in the total stimulus set. Whereas the judgment biases could not be explained in terms of a spurious or illusory correlation, they were predicted by the pseudocontingency account. More specifically, Experiment 1 showed that pairwise correlations with the context factor play a dominant role in the inference of a pseudocontingency if base rate and contingency information are learned incidentally. Experiment 2 revealed that both pairwise correlations and skewed context-specific base rates contribute to pseudocontingencies if the base rate and contingency information are made explicit before and during stimulus presentation.

The Inescapable Dilemmas of Multi-Level Problems in the Wild
Ralph Hertwig, University of Basel, Switzerland

In this talk I turn to two examples of multi-level problems in the wild. I use these examples to illustrate how both researchers and agents struggle to come to grips with the fact that the world can present itself in quite different ways, depending on the level of aggregation. The first domain is that of parental investment and the thesis is that parental investment decisions that appear desirable on one level, yield unintended, counterintuitive and even pernicious consequences on another level. According to the equity heuristic parents should attempt to subdivide resources more or less equally among their children (Hertwig, Davis, & Sulloway, 2002). This investment rule coincides with the prescription from optimality models in economics and biology in cases in which expected future return for each offspring is equal. Depending, however, at which level of aggregation one analyzes the equity heuristic, one will arrive at very different conclusions. Whereas an equity motive produces a fair distribution at any given point in time, it yields a cumulative distribution of investment that is unequal. Moreover, if one focuses on the resources that are most critical when a child is most helpless, that is, at the very beginning of his or her life, then it yields an unequal distribution that puts the laterborn at disadvantage. Alternatively, if one aggregates the resources that are exclusive to the last years of a child's development (e.g., allowance, education expenses), then earlierborns are at a disadvantage. These predicted inequalities were supported by evidence reported in studies exploring parental investment. In other words, the very attempt by parents to treat children equally may, counter-intuitively, lead to differential treatment on different levels of aggregation, and ultimately to differential development.

The second domain is that of consumer food choice. The thesis is that consumers' dietary intuitions can be exploited by creating specialized pockets of food products with correlations between food ingredients that drastically diverge from those found in super-ordinate food categories. To appreciate the argument, consider a nutrition label such as "low fat." Such labels are meant to influence consumers' health beliefs and purchase intention—to, according to the rhetoric, their advantage. Counter-intuitively, however, low-fat labels can actually contribute to obesity (Wansink & Chandon, 2006). How? One explanation is that manufacturers create selected pockets of food in which people's otherwise valid intuitions no longer hold. We analyzed eight super-ordinate food categories (ranging from vegetables and fruits to fish and meat), and found a high of correlation between calorie content and fat (ranging between .6 to .99). In Brunswikian terms, the amount of calories is a good cue for the amount of fat and vice versa. Within and across super-ordinate food categories more fat implies more calories. Food advertised as low fat, however, appear to no longer retain this key correlation. In the pocket of fat-reduced yoghurts the correlation between fat and calories drops to zero. Therefore, eating larger portion of a low-fat food could mean that one overconsumes a low-fat but calorie-rich food. From a Brunwikian point of view, food manufacturers appear to produce selected samples of food in which the otherwise valid intuitions (correlations between different food ingredients such as fat, calories, cholesterol) no longer hold. I will discuss these findings, applying a Brunswikian framework to consumers' probabilistic dietary inferences.

Context Relativity of Social Cognition

Categorization and Attractor Field Effects in Face Perception and Memory
Olivier Corneille, Catholic University of Louvain, Belgium

Humans are usually credited with high expertise in face memory. This expertise, however, does not prevent the occurrence of biases in face recollection, whose consequences may be disastrous,

particularly in the context of eyewitness testimony. In this presentation, we present a series of studies that provide evidence for the impact of categorization on face recollection. More specifically, we show that face recollection is accentuated towards face distracters that are more typical of their social category. For instance, keeping constant the objective differences between a target face and two distracter faces, participants are more likely to confuse a moderately Asian target face with a face distracter displaying more rather than less Asian features. The same accentuation effect applies to gender-ambiguous faces. We also show that this effect can result from both undirected categorization (Corneille, Huart, Becquart & Bredart, JPSP, 2004) and directed categorization (Huart, Corneille & Becquart, JESP, 2005) effects, provided categorical cues are communicated prior to face encoding in the latter case. For instance, people are more likely to confuse a gender-ambiguous target face supposedly called John with a more masculine than with a more feminine distracter face, but only so when the name of the face (i.e., the gender cue) is delivered prior to participants' exposure to the target face.

We further suggest that these categorization effects reflect participants' sensitivity to actual face information and favor accurate judgments in the long-run (Huttenlocher, Hedges & Vevea, 2000). However, we also note the impact of biasing psychological expectations in face perception and memory. Specifically, extending the attractor field model (Tanaka, Giles, Kremen & Simon, 1998; Tanaka & Corneille, in press) to the case of psychological atypicality (Corneille, Goldstone, Queller & Potter, 2006), we show that affectively-congruent expressions (e.g., unfriendly Blacks; friendly Whites) are likely to be better discriminated perceptually but more poorely recognized than are their affectively-incongruent counterparts (e.g., unfriendly Whites; friendly Blacks; Corneille, Hugenberg & Potter, JPSP, in press). Taken together, this set of studies suggests that biases in face perception and memory can stem from participant's sensitivity to real-word information and serve accuracy in the long-run, but perhaps when affective expectancies are involved.

A Context Variability Model of Social Perception
Peter Freytag & Klaus Fiedler, University of Heidelberg, Germany

Social perception is relative in that our impressions of ourselves and other people vary with frame of reference. For instance, you might consider yourself extravert compared to your co-workers, but introvert compared to your relationship partner. Moreover, social perception is selective in that the frames of reference we use are not random. For instance, we tend to draw on easily accessible routine standards for the purposes of social comparison, and we tend to use the self as frame of reference when assessing the attributes of other people. Although the notion of relativity and the notion of selectivity are both well-established in social cognition, their interactive effects and long-term consequences are not fully understood yet.

We present a context variability model (CVM) of social perception that rests on the simple assumption that the seemingly transient by-products of context-dependent impressions (such as the activation of knowledge about the self in social comparison, or the perceived typicality of group members in intergroup comparisons) accumulate over time and affect subsequent judgments. For instance, a clear picture of a prototypical group member should emerge if the same exemplars (e.g., taller ones) appear typical of a target group across a wide range of intergroup comparisons. No such picture should emerge, however, when different exemplars appear typical of the target group in different intergroup comparisons (e.g., taller ones on some occasions, and smaller ones on other occasions). Put differently, the CVM predicts that judgments about a target will be more differentiated to the extent that its attributes (a) have been assessed in different contexts and (b) have appeared differently in different contexts. Trivial though this hypothesis may be, it becomes quite powerful by the time one allows for variation in the degree to which the frame of reference varies for different targets. If context variation is stronger for some targets than for others, then the former will tend to appear less polarized. Using the perceived typicality of group members as the by-product carrying the effects of context variation on subsequent judgments, computer simulations serve to illustrate that the CVM can account for phenomena such as accentuation, outgroup homogeneity, ingroup homogeneity, and outgroup covariation – based on a unitary process (i.e., in the absence of systematic differences in motivation, familiarity, or knowledge utilization). The implications of these findings for accounts of intergroup perception will be discussed.

Talking Nets: A Multi-Agent Model Predicts How Individual Processes Impede Group Decisions
Frank Van Overwalle, Free University of Brussels, Belgium

A multi-agent connectionist model is presented that consists of a collection of individual recurrent networks that communicate with each other, and as such is a network of networks. The individual recurrent networks simulate the process of information uptake, integration and memorization within individual agents, while the communication of beliefs and opinions between agents is "propagated" along connections between the individual networks. A crucial aspect of this propagation between agents is the trust in the information provided. In the model, trust is determined by the consistency with the receiving agents' existing beliefs, and results in changes of the connections between individual networks, called trust weights. Thus activation spreading and weight change between individual networks is analogous to standard connectionist processes, although trust weights take a specific function. Specifically, they lead to a selective propagation and thus filtering out of less trustworthy information.

A unique contribution of this network approach is that the individual's trust in other agents leads to many well-known biases in group decisions. The preference for opinions similar to one's own leads, for instance, to the spreading of stereotypes and rumors, ignoring of alternative viewpoints and an exchange of shared or consensual information in group at the cost of unique information (hidden profile problem). The sharing of unknown or unfamiliar information in order to make more optimal decisions requires group members to realize that individual level preferences and trust need not coincide with hypothetical group level preferences on a whole. This biasing information uptake from others can be counteracted, for instance, by sharing all of the available information with each other (e.g., by lengthening the discussion time), by creating smaller groups so that the unique information is disclosed more rapidly, by appointing experts who are considered more trustworthy, and so on. Given the assumed built-in focus of individuals on the validity or trustworthiness of the information coming from other agents, these concerns are more salient than concerns about the usefulness or representativity of the information at the group level. Hence, we surmise that participants are not aware of the fact that their sampling and spreading of information to other agents may not be representative. Extraneous factors, such as concerns about cooperative communication (e.g. under stress) and information validity may further inhibit the complete exchange of information, while openness and tolerance for alternative viewpoints (e.g., by an impartial leader, appointment of a devil's advocate) my improve information exchange at the group level. In sum, the talking net model demonstrates how environmental structures (accidental agents exchanging information) and innocent characteristics of human information processing (emphasis on trust) jointly determine why people underuse available information and tend to accumulate and spread a biased account of available social information.

Results and Expected Impact on the Future Direction of the Field

At the end of the conference in Jerez de la Frontera, there was unanimous agreement among participants that the kind of cognitive-environmental research approaches advanced by this group of scholars is of imminent importance for the development of research and theorizing in social cognition, judgment, and decision making. Several future projects were started immediately. In particularly, three groups of authors decided to work on pertinent review paper dealing with the topics of pseudocontingencies (Fiedler, Freytag & Meiser), sampling theories (Chater, Denrell & Hertwig), and meta-cognitive myopia (Juslin, Fiedler & Denrell). To publicize the ideas presented on the expert meeting itself, it was decided to write proposals for a special issue to be published preferably in Trends in Cognitive Science or in Current Directions in Psychological Science. Furthermore, an Internet platform and an email network will be established, and future international conferences will be used for symposia and further meetings of the same interest group. Last but not

least, there is a critical mass of researchers who consider establishing a new network (possible an ESF Network) devoted to the topic of social rationality.

Participants

Nick Chater
University College London
Department of Psychology
26 Bedford Way
London WC1H 0AP
UNITED KINGDOM
n.chater@ucl.ac.uk

Olivier Corneille
Catholic University of Louvain
Psychology Department - PSOR
Place Cardinal Mercier, 10
1348 Louvain-la-Neuve
Belgium
olivier.corneille@psp.ucl.ac.be

Jerker Denrell
Stanford University
Graduate School of Business
518 Memorial Way
Stanford, CA 94305-5015
USA
denrell@gsb.stanford.edu

Klaus Fiedler
University of Heidelberg
Department of Psychology
Hauptstrasse 47-51
69117 Heidelberg
GERMANY
kf@psychologie.uni-heidelberg.de

Peter Freytag
University of Heidelberg
Department of Psychology
Hauptstrasse 47-51
69117 Heidelberg
GERMANY
pf@psychologie.uni-heidelberg.de

Ralph Hertwig
University of Basel
Department of Psychology
Missionsstrasse 64A
4055 Basel
SWITZERLAND
ralph.hertwig@unibas.ch

Peter Juslin
Uppsala University
Department of Psychology
Box 1225
751 42 Uppsala
SWEDEN
peter.juslin@psyk.uu.se

Yaakov Kareev
Hebrew University of Jerusalem
Center for Rationality
Giv'at Ram
Jerusalem 91904
ISRAEL
kareev@vms.huji.ac.il

Thorsten Meiser
Jena University
Department of Psychology
Humboldtstr. 11
07743 Jena
GERMANY
thorsten.meiser@uni-jena.de

Frank van Overwalle
Free University of Brussels
Department of Psychology
Pleinlaan 2
1050 Brussels
BELGIUM
frank.vanoverwalle@vub.ac.be

Michael R. Waldmann
University of Göttingen
Department of Psychology
Gosslerstr. 14
37073 Göttingen
GERMANY
michael.waldmann@bio.uni-goettingen.de