

The Brunswik Newsletter.

Vol. 21, 2006

Edited by Christopher J. Anderson

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22nd Annual International Meeting of the Brunswik Society

Houston

November 16-17th 2006

Room 338 Hilton Americas Hotel

Thursday 16th 2006

- 12.00 – 12.30 **Late registration**
- 12.30 – 12.45 **Welcome (Jim Holzworth, Mandeep Dhama, Tom Stewart)**
- Paper session 1 Theoretical Exposition (Chair: Alex Wearing)**
- 12.45 – 13.15 Ryan Tweney – *Brunswik's copy of Shannon's 1949 book*
- 13.15 – 13.45 Bernhard Wolf – *The 'ecological psychology' of Roger G. Barker and his 'midwest field station' as influenced by Heider, Lewin, Brunswik, and Gibson*
- 13.45 – 14.15 Michael Doherty, R. Anderson, A. Kelley, & J. Albert – *The perception of correlation*
- 14.15 – 14.45 Mandeep Dhama & H. Olsson – *Interpersonal conflict theory: 40 years later*
- 14.45 – 15.00 **Tea & coffee break**
- Paper session 2 Ideas in the Medical Domain (Chair: Rob Hamm)**
- 15.00 – 15.30 Jason Beckstead & K. Stamp – *Nurse practitioners' assessment of patient risk for coronary heart disease*
- 15.30 – 16.00 Robert Wigton – *Should we be teaching Brunswikian concepts to medical students?*
- 16.00 – 16.30 Len Dalglish – *Measures of ability and achievement: Joining up SDT and SJT*
- Paper session 3 Learning and Improving JDM (Chair: David Weiss)**
- 16.30 – 17.00 James Shanteau – *Redesigning environments to improve decision making*
- 17.00 – 17.30 Tom Stewart, J. Holzworth, & J. Mumpower et al. – *Learning to make decisions in an uncertain environment*
- 17.30 **Adjourn**
- 19.00 **Group dinner (details provided on the day), followed by 'Evening with Ken Hammond' discussion (Room 338 Hilton Americas Hotel).**

Friday 17th 2006

08.30 – 09.00

Breakfast

Paper session 4

Methodological Advances (Chair: Robert Wigton)

09.00 – 09.30

Radhika Nath – *Understanding preferences in health care using the MTMM and representative design ideas*

09.30 – 10.00

David Weiss, R. Thomas, S. Miller, & A. Kirlik – *Measuring performance without (and with) an external standard*

10.00 – 10.30

Daniel Oppenheimer & C. Hall - *Novel applications resulting from an alternate method of implementing social judgment theory*

10.30 – 10.45

Tea & coffee break

Special Topic

Pattern Recognition in Physician's Diagnosis (Speaker: Frank Papa, Discussants: Neal Dawson, Rob Hamm)

10.45 – 11.45

11.45 – 12.15

Break and pick-up lunch

Lunch panel

Why Should Fast and Frugal Heuristics be of Interest Brunswikians? (Panel: Gerd Gigerenzer, Ralph Hertwig, & Mandeep Dhami)

12.15 – 13.15

Paper session 5

Fast and Frugal Heuristics I (Chair: Jeryl Mumpower)

13.15 – 13.45

Gerd Gigerenzer – *How does intuition work?*

13.45 – 14.15

Wolfgang Gaissmaier & A. Broder – *A cue-based approach to intuition*

14.15 – 14.45

Konstantinos Katsikopoulos, Y. Hanoch, M. Gummerum, & E. Brass – *To take or not to take environment and over-the-counter pain relievers*

14.45 – 15.15

Benjamin Scheibehenne, L. Miesler, & P. Todd – *Go with the best and ignore the rest: Trade-offs and cue utilization in food choice*

15.15 – 15.45

Bettina von Helversen, J. Rieskamp & P. Ianiro – *Sentencing decisions in Germany: Which factors matter?*

15.45 – 16.00

Tea & coffee break

Paper session 6

Fast and Frugal Heuristics II (Chair: Michael Doherty)

16.00 – 16.30

Thorsten Pachur – *Ecological and subjective cues in multiple-cue judgment*

16.30 – 17.00

Rick Thomas, M. Dougherty, & A. Franco-Watkins - *Ecological constraints on inferences from recognition memory: Why less isn't more*

17.00 – 17.30

Julian Marewski & L. Schooler – *Do people use the fluency heuristic when competing knowledge-based strategies cannot be applied?*

17.30 – 18.00

Ralph Hertwig & S. Herzog – *The ecologically rational fluency heuristic: A model of how the mind exploits a by-product of information retrieval*

18.00 – 18.15

Hammond-Brunswik New Investigator Award

18.15

Farewell

Does a Simple Nonconsciously-Perceived "Yes" or "No" Affect Medical Decisions?

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It is now well-established that most human mental states, behaviors, judgments and decisions might be affected by nonconsciously-perceived stimuli and cues arising from the environment (Bargh & Chartrand, 1999). These stimuli or cues might include virtually anything such as a mere trivial word or image incidentally "hitting" an individual (e.g., seeing a "hair gel" brand may activate a teenager's tendency for flirting behavior or hearing the word "bedroom" may arouse her or him sexually). Clearly, most of these effects go unnoticed because they might have less of an impact on a person's life. However, there are many real life situations in which the negative influences of such nonconscious processes cannot be ignored. Medical decision making is an important area that might be susceptible to these "unwanted" byproducts of an evolved system of cognition. The main objective of a recent study of mine was to investigate whether a nonconsciously-perceived simple "yes" or "no" alone or coupled with an emotionally-matched picture might affect medical decisions. To explore this question, two experiments were conducted in which 186 medical students participated. In Experiment 1, 98 participants were first subliminally primed with the words "yes", "no", or "apple (serving as a neutral word)." They, then, were presented with a series of items (responded to on a Likert-type scale ranging from 1-9) requiring them to decide in various medical domains. Some items had to be responded in a way that indicated a "yes." Similarly, some had to be responded in a way that indicated a "no." In Experiment 2 involving 88 participants, the priming procedure was both verbal (the words "yes", "no", and "apple") and pictorial. That is, participants were primed with either a smiling male face superimposed on a "yes" sign, a scowling male face superimposed on a "no" sign, or a nonemotional neutral male face superimposed on an "apple" sign. Results revealed that in both experiments, the participants' decisions were affected by the primes in the relevant positive and negative conditions. More specifically, those perceiving the nonconscious positive verbal and verbal/pictorial primes tended to espouse a "yes" response to a question which normally required a "no" response and vice versa. It could be concluded that a subtle nonconsciously-perceived stimulus may affect how people decide in medical domains.

Bargh, J. A., & Chartrand, T. L. (1999). The unbearable automaticity of being. *American Psychologist*, 54, 462-476.

Examining How Task Variables Affect Order Effects for a Long Series of Information

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A tenet of Brunswikian theory is that cognitive processes are a function of task variables. Hogarth & Einhorn (1992) applied this tenet in their seminal review of the literature on order effects, which is the finding that different ordered sequences of the same information can result in significantly different judgments. There has, however, been minimal research investigating order effects for a long series of information. One of my students, Ilean Keltz, addressed this issue in her dissertation, building on earlier research reported in Keltz & Adelman (2005).

Hogarth & Einhorn's proposed anchoring and adjustment model predicted that there will be a "force toward primacy" because people will become less sensitive to later information under all task conditions for a long series of information when judgments are made after each piece of information. An experiment tested this prediction for tasks varying in complexity, as defined by Hogarth & Einhorn, and sequencing (or grouping), a task variable not considered in their task-variable classification scheme. The result was a significant order x complexity x sequencing interaction with a slight primacy effect only being observed when (a) the task was complex and (b) confirming, neutral, and disconfirming information were grouped together. In contrast, the strongest effect was a recency effect, where more recent information was over, not underweighted when (c) the task was simple and (d) information was grouped together. Although task complexity significantly affected participants' mental effort, mental effort did not mediate participants' belief revision or explain the observed order effects. More generally, the results again support Brunswik's admonition to look at the task environment as the precursor to understanding cognitive processes.

Hogarth, R. M. & Einhorn, H. J. (1992). Order effects in belief updating: The belief adjustment model. *Cognitive Psychology*, 24, 1-55.

Keltz, I., & Adelman, L. (2005). Testing information order effects in a long series of evidence. *Proceedings of the 26th National Conference of the American Society of Engineering Management*, pp. 483-492.

Repeated Judgements Of Educational-Vocational Interest

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This program of research analyses repeated judgements of interest. Three case studies of 60 judgements of interest in a course based on the six Holland vocational interest types were analysed using the single lens model of social judgement analysis. The three case studies represented varying levels of intercorrelation between the Holland vocational interest factors from -0.05 through 0.20 to 0.54. The participants selected from 30 subjects were those with highest test-retest reliability of judgement. Results indicated that even with these stable respondents the level of personal interest is unlikely to be elicited with any certainty until after 30 or more exposures to different vocational situations. The patterns of interest judgement were idiosyncratic. The explanatory value of the Holland factors varied across individuals. This lens model analysis offered a diagnostic framework for the detailed assessment of educational-vocational interest.

Update from the Backus Lab

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Ben Backus, who attended the 2005 meeting in Toronto, has with colleagues won an award from the Human Frontier Science Program to study the learning of cues' ecological validities by the visual system.

Brunswik's lens model was developed largely to account for the use of visual cues during perception, and he predicted that new cues should be recruited by the system by means of association and then have effects on appearance. This effect was not convincingly demonstrated by Brunswik or his contemporaries, but it was finally demonstrated using perceptually bistable stimuli (<http://www.pnas.org/cgi/content/abstract/0506728103v1>). The grant will support an international team that includes Backus (University of Pennsylvania, Psychology), Marc Ernst (Max Planck Tuebingen, Biological Cybernetics), Guy Wallis (University of Queensland, Australia, Human Movement Studies), and Michael Kearns (University of Pennsylvania, Computer & Information Science). The aim of the project is to understand cue recruitment during visual perception through the use of Pavlovian conditioning ("cue recruitment experiments") and by integrating perceptual theory with the animal learning and computer learning literatures. The HFSP will provide \$1,050,000 over three years to support the project.

Recent Research Collaborations

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I am currently collaborating on two projects that may be of interest to fellow Brunswikians. The first is a review of inter-personal conflict (IPC) theory in collaboration with Henrik Olsson. Relative to other lens model influenced paradigms such as multiple-cue probability learning, IPC has received little research attention, particularly since Brehmer's (1976) review of the research in this area. At this year's Brunswik Meeting we will present the results of our review, summarising both the early work that was done on IPC and the research that followed up on this, as well as new developments in the study of conflict that are not rooted in Brunswikian principles but may be of interest to Brunswikians. The second project is an empirical analysis of differences in the cognitive processing of expert and novices which is being done in collaboration with Rocio Garcia-Retamero. We are currently collecting data from police officers, convicted burglars, and students on their predictions of residential burglary, and hope to have some interesting results to report at the 2007 meeting.

Brehmer, B. (1976). Social judgment theory and the analyses of interpersonal conflict. *Psychological Bulletin*, 83, 985-1003.

Political Psychology

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I have continued to research issues in political psychology and will report on the most Brunswikian of these. I look at the basis of misperceptions about the Iraq war and support for the Iraq war and the foreign policy of preemption. Previous research has shown that the more accurate a person is in their knowledge about al Qaeda and Saddam Hussein, the less they support the war in Iraq. I replicated this work showing that the total number of misperceptions held by a judge is positively correlated with support for the war in Iraq. I also extended this work by showing that this same relationship exists with the policy of preemption. I then sought to examine individual difference variables that likely act as a filter for the development of misperceptions. Right-wing authoritarianism and social dominance orientation both predicted the number of misperceptions held. The implications of this research for issues of war and peace and a healthy democracy are discussed. Please contact me for a draft copy of this manuscript.

Structural Equation Modeling of the Multi-Concept Multi-Method Matrix Applied to Utility Assessment of Health States.

Robert M. Hamm

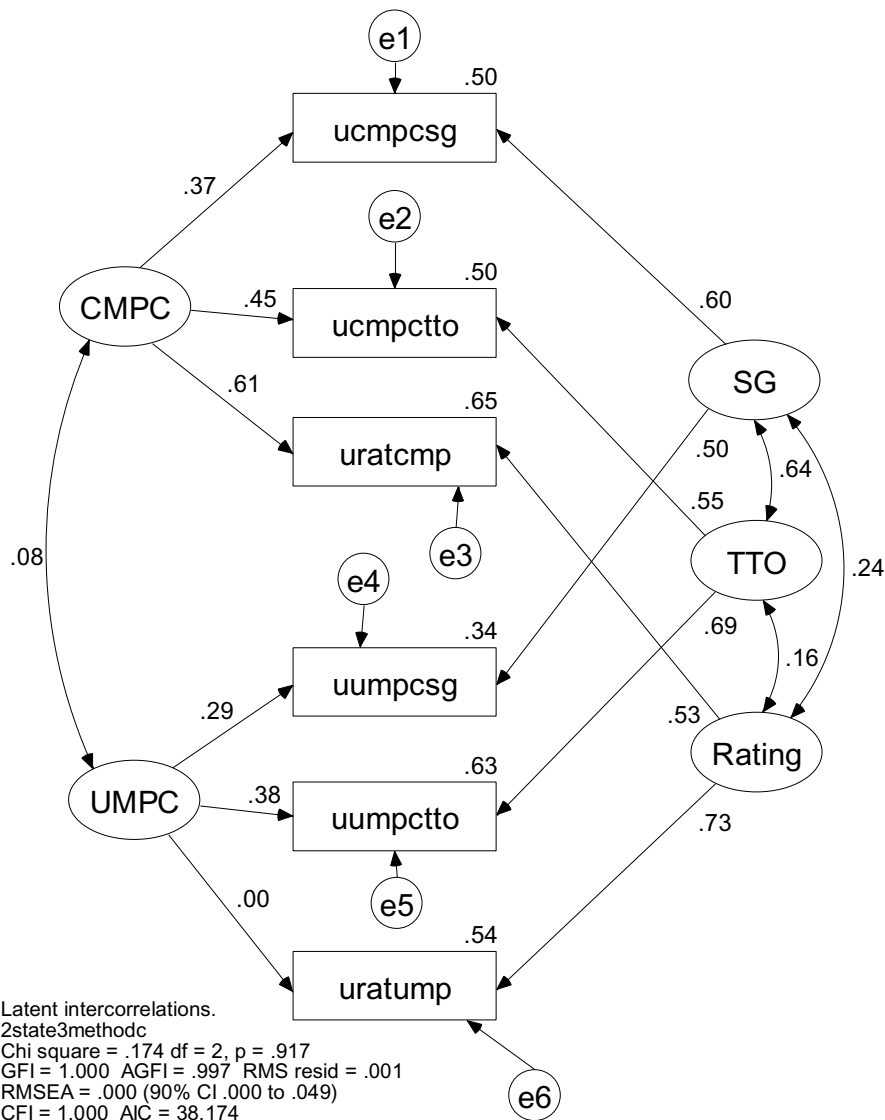
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I have been working with Radhika Nath and David Bard on the application of structural equation modeling to Multi-Concept, Multi-Method (MCMM) data (Hammond, Hamm, & Grassia, 1986). Radhika had applied the MCMM approach to utility measures, in her dissertation at Albany (Nath, 2004). I too had some data in which participants judged multiple health states (relevant to prostate cancer treatment side effects) using multiple utility assessment methods.

Nath applied structural equation modeling (SEM) to describe the latent method variables, and to describe the relation of utility judgments to individual characteristics. The present research with Bard and me explores the use of structural equation models to embody a full MCMM approach, with both latent method variables and latent health state variables, as well as the relation with individual characteristics. We have explored various SEM approaches, with both data sets.

Methods: In Nath's data set, 99 men and women judged the utilities of blindness, stroke, and AIDS, from detailed descriptions, using a visual analogue scale (VAS), standard gamble (SG), and time tradeoff (TTO). Hamm's data are from a study of the effects of informing men about prostate cancer screening. In one subset of these data, 227 men judged both Uncontrolled Metastatic Prostate Cancer (UMPC) and Controlled Metastatic Prostate Cancer (CMPC), with each of three methods: rating (R), SG, and TTO. In a second subset, 208 men judged five treatment-related states (impotence, mild and severe incontinence, watchful waiting, hormone treatment) with SG, R, and a chained tradeoff method called time in state tradeoff (TISTO). In the latter method, men evaluated CMPC with TTO, and traded time with the treatment-related states against time with CMPC. The correlations among the nine (Nath's data), six (Hamm's first utility judgment subset) or 15 (Hamm's second utility judgment subset) utility judgment variables, across subjects, were analyzed with SEM using the AMOS program.

Results. For each data set, it was possible to produce a full MCMM structural equation model: for the $m \times s$ judgments (m methods by s states), m latent method variables and s latent health state variables were drawn. All intercorrelations among methods, and all among states, were included in the models. It was necessary to specify constraints on some error variances, in order for the maximum likelihood process to converge on a model that obeyed all requirements. The MCMM SEM models for the 3×3 Nath dataset and the 3×2 subset of the Hamm data (see graph) had adequate scores (Chi-squared, RMSEA), but the MCMM SEM model for the 3×5 subset of the Hamm data did not.



Conclusions: Structural Equation Analysis of the MCMM model, as applied to utility assessment data, offers a promising framework for simultaneously observing concept intercorrelations and method effects.

Hammond, K. R., Hamm, R. M., & Grassia, J. (1986). Generalizing over conditions by combining the multitrait-multimethod matrix and the representative design of experiments. *Psychological Bulletin*, 100, 257-269.

Nath, M. R. (2004). *A Validation Analysis of Utility Elicitation Methods*. State University of New York at Albany, Albany NY.

Brunswikian research at the University of Connecticut

Jim Holzworth
Storrs, Connecticut

Research in the Brunswikian tradition continues at the University of Connecticut. Some of our Brunswikian graduate students are away on internship, and others have just returned to campus. A group of us has formed to continue our discussion of cognitive continuum theory and individual differences in cognitive style. We are also working with Tom Stewart and Jeryl Mumpower at the University at Albany on a project concerning how people learn to make decisions when feedback is limited. Please refer to Tom Stewart's report for specific details concerning this project. We are framing our work at UConn within the context of personnel selection.

Judgment achievement under the lens

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Tucker's famous article (1964) describes the decomposition of judgment achievement into correlation components called the Lens Model Equation (LME). Since the publication of this article, many have applied the LME to individuals (i.e. idiographic approach) or groups (i.e. nomothetic approach). For example, the LME has been applied to decompose the estimates of student reading achievements (Cooksey, Freebody, & Davidson, 1986). However, no review of the correlation components of the LME has been carried out since the publication of Tucker's article. To provide such a review, a research project has been initiated in the context of a doctoral thesis to address the application of the LME to publication recommendations of journal peer reviewers. The goal of our project is to describe the correlation components of the LME in studies applied to individuals or groups. Furthermore, we are interested in identifying which characteristics of tasks (e.g. the number of cues) influence the correlation components G and R_s . We have recently completed an assessment of the literature, and the results will be summarized in a manuscript that is currently under preparation. Following this, data obtained from a journal will be analyzed to investigate how journal peer reviewers arrive at their publication recommendations.

Cooksey, R. W., Freebody, P., & Davidson, G. R. (1986). Teacher's predictions of children's early reading achievement: An application of social judgment theory. *American Educational Research Journal*, 23, 41-64.

Tucker, L. R. (1964). A suggested alternative formulation in the developments by Hursch, Hammond and Hursch and by Hammond, Hursch and Todd. *Psychological Review*, 71, 528-530.

The idiographic approach in Social Judgment Theory: A meta-analysis of components of the Lens Model Equation (LME)

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There have been many successful applications of both normative and descriptive theories in Judgment and Decision Making (JDM) research. Most of them have used a nomothetical approach. However, this approach always means some reduction of concrete, specific information, so-called idiographic knowledge. To collect such idiographic information the LME is a powerful tool, because the Lens Model focuses on individuals (see Stewart, Roebber, & Bosart, 1997).

Despite many research publications using the LME in studying JDM, no meta-analysis of the components of the LME is known. Our study, aiming at such a meta-analysis (see Glass, 1976), describing component correlations of the LME, started with a comprehensive literature search, showing that most studies applying LME deal with multiple-cue learning (Holzworth, 1999) and cognitive feedback (Balzer, Doherty, & O'Conner, 1989). However, we found 14 studies satisfying our definition of an idiographic approach and presentation. In these 14 studies, which constitute our research sample, 263 judgment achievements, made by 167 subjects were analyzed using the LME. Of the 167 persons across the 14 studies, 35% (58) were included in studies applied to medical science, 14% (24) in studies applied to business science, 31 % (52) in studies applied to educational or psychological research areas, and 20 % (33) were in studies applied to other research areas. The meta-analysis was carried out according to the Hunter-Schmidt method (2004). Descriptive statistics are presented on the overall averaged level of achievement correlations and on the achievement correlations separated by the research areas. Further, our descriptive statistics present values for the four components (G, Rs, Re, C) of the LME, as well as for the total material for judgments separated by research areas.

The major finding of the meta-analysis applied over all the selected studies is that human beings judge a given criterion with moderate achievement of .41. There are individual differences among the judges' achievements. There are also differences when looking at the studies separated into their applied research areas. Better judgment achievements were attained by those studies applied to the "other research areas" and to the educational or psychological research areas. Studies applied to the medical or business sciences showed lower judgment achievements.

To take a closer look at the contrasted results of the judgment achievements their components were considered. As the pattern of component G is high so is the Re value in studies separated by research areas, except for the moderate value in studies applied to business science, where G and ra are exceptionally low. The high error-free judgment achievement (G) of persons means that judgment achievement (ra) can be better than moderate. The judgment achievement can increase from a moderate level of .41 (judgment achievement) to a high level of .69 except for those studies applied to business science. In contrast to other components, the overall average value as well as the values separated by research area of the component C are quite low.

The results also suggest that judgment achievement is influenced by study characteristics like the number of cues. In the study with the highest number of cues, the subjects judged less accurately than in the study with the fewest cues. The effect of adding cues may influence both environmental prediction and the judge's consistency.

Finally, we want to emphasize the value of an idiographic approach for understanding individuals' judgment strategies, for measures to improve judgment achievement and for opening up new research roads. Our article gives researchers in this area a reference for their results. Furthermore, this review is also useful for people interested in Brunswik-Symmetry (Wittmann, 2000).

Balzer, W. K., Doherty, M. E., & O'Connor, R. (1989). Effects of cognitive feedback on performance. *Psychological Bulletin*, 106(3), 410-433.

Glass, G. V. (1976). Primary, secondary, and meta-analysis of research. *Educational Researcher*, 5, 3-8.

Hunter, J. E., & Schmidt, F. L. (2004). *Methods of meta-analysis: Correcting error and bias in research findings* (Vol. 2). Newbury Park, CA: Sage.

Holzworth, R. J. (1999). An annotated bibliography of all published cue probability learning studies. Retrieved March 21, 2005 from <http://www.brunswik.org/resources/mcplbib.doc>

Stewart, T. R., Roebber, P. J., & Bosart, L. F. (1997). The importance of the task in analyzing expert judgment. *Organizational Behavior and Human Decision Processes*, 69(3), 205-219.

Tucker, L. R. (1964). A suggested alternative formulation in the developments by Hursch, Hammond and Hursch and by Hammond, Hursch and Todd. *Psychological Review*, 71, 528-530.

Wittmann, W. W. (2002). Brunswik-Symmetry. *The Brunswik Newsletter*.

The Effect Of Calibration Training On The Underconfidence Bias

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A sample of easy verbal tasks was selected to generate the underconfidence bias in the context of probabilistic mental models theory. An experiment was conducted to test the hypothesis that states the dissolution of the miscalibration through calibration training. The experimental group completed in the training phase an abbreviated version of an easy verbal test (BAIRES Test of synonyms and definitions, with success probability between .60 and .90) for Spanish speaking university students, followed by a frequency calibration task (success estimation in the long run). This group received information about the correct answers of the test after the calibration. Subjects were asked to evaluate the accuracy of their calibration as training manipulation. In the test phase subjects completed a parallel and extended version of the same test (items were not repeated), followed by the frequency calibration task. The underconfidence bias was observed in the control group (no training) and in the training phase of the experimental group. After the

training, the underestimation disappeared. The verbal performance did not increase after the training, but the calibration became nearly perfect. The underconfidence bias was eliminated through the calibration training, rather than through the verbal training. The fast activation and adjustment of the corresponding probabilistic mental model to the actual difficulty of the particular sample of tasks explains the dissolution of the miscalibration. The relation between metacognitive processing and the calibration training phenomena are discussed. Further experiments will focus on the calibration adjustment in experts and non-experts in the context of representative and non-representative designs (i.e. harder and easier samples of tasks).

Brunswikian Research

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We are starting to look at decision making strategies as a function of several contextual variables – risk, ambiguity, and affect. Last year we conducted a study examining how participant information search strategies and decision outcome in a ‘whistle blowing’ decision task were impacted by risk and ambiguity of cues and information. We used a web-based platform, and recorded participant think-aloud protocols as they performed the task.

Participants were asked to respond to a set of scenarios that vary according to the independent variables. The scenarios will be variations of potential ‘whistle blowing’ situations, in which some unethical organizational behavior may be occurring. Before beginning the experimental tasks, participants were given information about ‘whistle blowing’ by employees when organizational practices are unethical (i.e., making these practices public), and potential hazards to self and to society of blowing/not blowing the whistle. They were asked to make a diagnosis of the situation (how likely it was that the unethical behavior was actually taking place) and to come to a decision about what to do. At the end of the study, they will be asked to provide information on their age, gender, and work status (e.g., current employment) and to indicate whether they have ever been involved in a situation similar to those in the experimental tasks. Surprisingly, 20% of our student participants had been involved in a whistle-blowing situation during their employment.

A repeated measures 2x2x2 (cue ambiguity x risk to self x risk to society) design was used. Each participant responded to 8 different scenarios – one with each combination of the variables. Scenarios were presented on computerized displays. Participants read a brief description of the situation, and accessed additional information and cues by clicking on a button or text link to the information. Cue ambiguity (high vs. low ambiguity) was manipulated by including cues and information that are either highly ambiguous (e.g., hearsay, brief glimpse) or not ambiguous (e.g., direct observation, written evidence) diagnostic indicators. Risk to self (high vs. low) refers to the stated potential for losing one’s job or jeopardizing one’s career. Risk to society (high vs. low) refers to the potential harm to society if the unethical organizational behavior is actually

occurring. For each scenario, participants will be asked to indicate their level of certainty that unethical behavior is occurring, and to indicate what they would do.

Preliminary results. We looked at the effects of the independent variables from two perspectives: process and outcome. Process was explored by examining patterns of information gathering through analyses of cue boxes opened, as well as through complementary coding and analyses of a subset of think-aloud protocols. Outcomes were examined through measurement of participants' willingness to report the alleged behavior to the appropriate authorities.

None of the independent variables impacted the total number of cue boxes opened in scenarios. Surprisingly, risk-to-self level did not impact the number of risk-to-self cue boxes accessed. However, significantly more ambiguity cue boxes were opened when ambiguity was high than when ambiguity was low. This is consistent with the notion that people will try to be more certain of a situation before deciding what to do.

A significant effect was also found for risk-to-society level on number of risk-to-society boxes opened. Surprisingly, more risk-to-society cue boxes were opened with risk to society was low than when risk to society was high. The rationale for this finding may be similar to that underlying the ambiguity box finding. When initial information indicated that risk to society was high, individuals did not have to continue to seek information about risk level; additional cues were not likely to mitigate the initially assessed risk. When risk to society was initially presented as low, however, participants might need to assure themselves that risk to others was really not an issue before making a decision.

Main effects of risk to self and risk to society on participants' likelihood of reporting the scenario incident. People were much more willing to report the situation when risk to society was high or when risk to self was low. A significant risk-to-self by risk-to-society interaction suggested that low risk to self particularly enhanced participant willingness to report incidents at the high risk-to-society level. We haven't started looking at think-aloud protocols yet, but plan to code a subset of the tapes. Coding categories will indicate what cues and information participants used, how they referred to this information (e.g., noting its relevance; stating its presence), and how they used it (relating it to other information; treating it as an isolated piece of information).

Next phase – affect and decision strategies. In our next study, we will manipulate affect (happy, angry, anxious/fearful) and track the impact on decision strategies. Much has been done on the impact of emotion on decision outcomes, but not much on strategy.

Development of Expertise in Teams

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At Kansas State University, we are analyzing how training and practice determine the development of expertise at both individual and team levels. A training protocol was developed that reduced the time needed for individuals to reach stable performance, and another protocol that taught teamwork skills.

We used networked C-TEAM to study development of expertise for teams of simulated air traffic controllers. CWS served as the primary index of performance, although traditional measures were examined as well. As a performance measure, CWS was observed to be more sensitive to improvement than performance errors. Experts make too few errors to provide differential information, whereas CWS attends to aspects of performance that can always be observed, whether errors are made or not.

At the individual level, initial skill superiority was maintained over trials. For instance, training yielded skill superiority that could not be overcome with practice. Moreover, rank orders of performance were maintained whether initial superiority was produced by individual differences or by training.

A similar picture emerged for team training: initially superior teams maintained their advantage with extended trials. Inferior teams generally improved with practice, but they never caught up to initially superior teams. As with individuals, final rankings were highly correlated with initial rankings.

Another intriguing result is that in a task where members operate sequentially (as in C-TEAM), variability in performance cumulates over successive links. Such variability in performance, however, is inconvenient for assessing a team's performance. We suspect this property obtains when team members contribute their efforts interdependently, rather than independently.

We are presently examining team performance using other microworld simulations where individual members work independently, ie, interchangeably.

Brunswikian Concepts Applied To Item Selection

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. According to Fishbein and Ajzen, (1975 p. 336) most investigators would agree that attitudes are learned dispositions to respond to an object in a consistently favourable or unfavourable way, the concept object taken in a broadly grammatical sense. Our attitude studies, focused on an attitude dimension, tentatively called “patient-centeredness”, are parts of a project also including content analysis of a curriculum and a critical incident study in hospital wards. All the studies are focused on patients’ psychosocial needs in caregiver situations. The psychological and social goal aspect is an important factor influencing patients’ chances to recover and return to everyday life with an acceptable quality of life. The aspect is also related to daily work-satisfaction among healthcare staff. Further financial pressure and bureaucracy, may sometimes dominate the scene with the risk of people becoming aspect-blind with regard to the psychosocial consequences of their judgements and decisions. Doctors and nurses sometimes complain about being forced into a process that could be called social production of moral indifference. In short, different aspects of a society’s healthcare do not function independently of each other; they interact for better or worse. General goals are easily overruled by quasi- imperative goals on lower, executive levels, as has been pointed out by Flanagan (1954, p.336):“--discussions have failed to emphasize the dominant role of the general aim in formulating a description of successful behaviour or adjustment in a particular situation.” In “The Authoritarian Personality” (Adorno, Frenkel-Brunswik, Levinson et al. 1964) the authors point out that the place to look for determinants of certain attitudes is within the persons expressing them, i.e. attitudes, are related to a person’s psychosocial needs. Our attitude universe is conceptually based on Maslow’s list of our common psychosocial needs. These 11 needs are described in the instructions given to subjects involved in our studies, for example: “The need for communication with people”, “The need for emotional security”, “The need for achievement”, and so on. Each need is defined more precisely. So, for example, the “Need for achievement” is described as follows: “To increase your personal pride by achieving something, to overcome obstacles, to exceed your present achievement level, to master or manage tasks satisfactorily”. To take account of patients’ psychosocial needs in healthcare situations is thus seen as a pervasive goal in societies’ healthcare.

Brunswik’s recommendation for “representative design” is a request for realism, in our context meaning that attitude items should be relevant in relation to the attitude universe, i.e. the need-goal aspect. We have tried to comply with this demand for representativeness thus:

A qualified nurse made excerpts dealing with the defined need-goal aspect, from literature, where nurses, patients, doctors, psychologists and sociologists gave their ideas and opinions about the social and psychological relation between patients and caregivers. From this literature search, covering 27 works, 175 excerpts were sampled and formulated to attitude items. To be able to discuss the representativeness of this item

sample in terms of the defined attitude universe, a content analysis of the 175 items was performed.

Two independent, experienced nurses, heads of nursing schools, were instructed to infer and check for each item if an endorsement response to the attitude statement had connotations referring to some of the 11 needs. If so, they were to specify for each item, in a response form, which needs were involved. The order between the items was separately randomised for the two judges. The item sample (N=175) is regarded as a family of ways to express the same underlying attitude dimension in divergent ways during different conditions, i.e. in different situations. Simultaneously with the presentation of each item the judges were presented with a short situation description congruent with an endorsement response, see the two examples below: The judges were asked to make separate records for satisfying respectively frustrating the patients needs.

Item 1: Malingerers should not occupy hospital care.

Congruent situation. Patients suspected of malingering are not believed, not given sick care and not admitted. They fall out of the category “sick people”.

Item 2: The more people responsible for the patient’s care the less satisfactory the result.

Congruent situation: Care of the single patient is delegated to as few people as possible and the main responsibility allocated to one person.

Our item sample (N=175) has thus been complemented with 175 corresponding situation descriptions.

The total sum of relevance checks for the two content analysers amount to 2414, with a distribution range over the 11 needs from 390 to 80, with the “Need for emotional security” at the top and the need for “Personal realization” at the bottom of the 11-graded rank-list. The judges’ relevance checks were differentiated with regard to whether the situation was judged to satisfy or frustrate the need. The rank correlation between the two judges’ rank series of the 11 needs amounts to $r = .81$ for satisfaction and to $r = .77$ for frustrating. Raised with Spearman–Brown’s formula these correlations amount to $r = .90$ and $r = .87$.

Our stimulus material consisting of 175 attitude items with corresponding verbal situations is an effort to extend the sampling procedure to include even environmental situations. It could be said that verbal descriptions of situations do not constitute a representative sample of the proximal, real world of patient–caregiver relations. They may, however, be regarded as a distal sample. To get a more proximal sample of situations, our information sources should be closer to the real work situations in hospitals. Such a situation-sample has been collected by critical incident interviews with 172 nurses involved as parts in the reported situations, at their place of work. This study has resulted in 400 situation descriptions concerned with our need-goal aspect, covering 19 steps in the nurses’ own work-cycle, from admittance to discharge of the patient. It will thus be possible to compare the content analysis of our attitude items with results from our environmental study, i.e. the critical incident interviews in the hospital wards. Based on our item analysis, two “parallel” Likert scales were constructed, each with 50 items. A descriptive factor analysis was carried out, using the standard program BMD03 (Dixon, 1967). Our subject sample (n=131) included student nurses. They received some brief information about the aims of the research project before answering the two Likert scales; the relative order of presentation was systematically varied between subjects. For

both factor analyses the same 7-attitude complex could be distinguished, giving descriptions of our concept “patient-centeredness” on a higher level of abstraction than that of the single cues (items) derived from our literature excerpts. The factors are:
Factor 1. A formal, instrumental attitude towards the expressive, psychological aspect of health care.

Factor 2. Resistance or lack of preparedness to share the emotional problems of others combined with a one-sided concern with practical matters.

Factor 3. The positive pole of this factor is defined as an extrovert, dutiful disposition while the opposite pole seems to represent a more introvert inclination with a tendency to withdraw from social contacts.

Factor 4. Active interest in the patient as a person combined with sensitivity and consideration in personal contacts.

Factor 5. Items loaded in this factor reflect an attitude that can be described as problem-smoothing or problem belittling.

Separate attitude scales were constructed for each of these factors and used to study attitude changes during nurses’ professional education with a cross-sectional method (n=290). Results from this study can be used for theory-building regarding eventual effects of different teaching and training methods on attitude formation during nursing education.

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Effects of base rate, values, and feedback on accuracy and performance in decision making

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We have completed data collection for the first phase of an NSF funded project investigating how people learn to make decisions when feedback is limited because the decision itself eliminates the possibility of feedback. For example, personnel managers rarely find out if applicants not hired would have been good employees. Using laboratory tasks, we have varied base rate, type of feedback and the costs and benefits of errors and correct decisions. Data have been collected in Albany using a customs officer screening task and at the University of Connecticut using a hiring task with identical formal properties.

Three feedback conditions have been used. In the full feedback condition subjects receive feedback on every trial (20 blocks of 25 trials). In the partial feedback condition, subjects receive feedback only when they make a positive decision. If they decide not to screen a person, or not to hire a person, they receive no feedback. In the reduced feedback condition, subjects receive the same amount of feedback that subjects received in the corresponding partial feedback condition, but they receive it on a random schedule.

As expected, subjects generally performed better (and achieved nearly optimal performance) with full feedback. The decrement in performance for the partial and reduced feedback conditions varied according to other factors. Our results will be presented at the meeting in November.

Brunswik's heritage: Psychology in terms of objects within the unity of science

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When a few psychologists today (the „International Brunswikian Folks“) try to follow selected theoretical ideas of Egon Brunswik in their own modern scientific work, this small group of insiders should keep in mind the following two facts:

(1) Brunswik conceived the science „psychology“ in terms of attained objects („Grundlegung einer Psychologie vom Gegenstand her“ in his early Vienna-diction). The focus of psychological research thus lies in the adjustment of the organism to a complex environment. Therefore, those objects of the environment (e.g. the material world itself) which are relevant for the organism are themselves integral, primary and major parts of psychological analysis. The necessary mediation processes (Heider, 1926) between organism and environment are only of lesser importance for the psychological analysis, compared to the power of the objects. Brunswik's metatheoretical conception of the general role of psychology has been rarely accepted by his colleagues during his active time (1934-1955) and even up to now. In contrast to this position most psychologists (then and today) have preferred the conception of subject-dependence (e.g. Lewin). The small group of Brunswik-inspired psychologists of today should remember, however, that the idea of a „psychology in terms of objects“ is central for his whole (Vienna and Berkeley) theoretical work. Despite all scepticism, we could follow this principal line of argumentation (at least partly) in our future research.

(2) Brunswik's view of a „psychology in terms of objects“ is embedded into the greater context of the „unified science“ (unity of sciences; „Einheitswissenschaft“ in his early Vienna-diction). The general idea of „Einheitswissenschaft“ was invented by the philosophy of science movement „Vienna Logical Positivism“ at the beginning of the 20th century (before 1938). Brunswik joined this movement as a rather marginal figure, but then continued to follow and use these ideas throughout his whole life (e.g. look at the directions of the „conceptual framework“-book of 1952, or of the „conceptual focus“-paper of 1939). Within the framework of the hypotheses of procedural unification and methodological unity, Brunswik simultaneously pleads for a thematic diversification and differentiation of psychology as a typical macrostatistical discipline.

His demand for understanding scientific psychology as dealing with objective organism-environment relations, combined with the underlying commitment to the notion of a unified science, could prove to be a fruitful task to be followed by present Brunswikians in their studies.

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Job Ad

Postdoctoral Fellowships and Visiting Graduate Fellowships IN COGNITION AND DECISION MAKING -- The Center for Adaptive Behavior and Cognition at the Max Planck Institute for Human Development in Berlin, under the direction of Gerd Gigerenzer, is seeking applicants for up to 3 two-year Postdoctoral Fellowships and up to 2 one-year Visiting Graduate Fellowships beginning on or after September 1, 2007. The Visiting Graduate Fellowships are intended for students currently enrolled in graduate programs.

Candidates should be interested in studying the cognitive mechanisms underlying bounded, social, and ecological rationality in real-world domains. Current and past researchers in our group have had training in psychology, cognitive science, economics, mathematics, biology, and computer science to name but a few. The Center provides excellent resources, including support staff and equipment for conducting experiments and computer simulations, generous travel support for conferences, and, most importantly, the time to think.

For more information about our group please visit our homepage at <http://www.mpib-berlin.mpg.de/en/forschung/abc/index.htm> or write to Dr. Lael Schooler (fellowships@mpib-berlin.mpg.de). The working language of the center is English, and knowledge of German is not necessary for living in Berlin and enjoying the active life and cultural riches of this city. We strongly encourage applications from women, and members of minority groups. The Max Planck Society is committed to employing more handicapped individuals and especially encourages them to apply.

Send applications (consisting of a cover letter describing research interests, curriculum vitae, 3 letters of recommendation, and up to five reprints) by January 10th, 2007 to Ms. Wiebke Moeller, Center for Adaptive Behavior and Cognition, Max Planck Institute for Human Development, Lentzeallee 94, 14195 Berlin, Germany.