

PROGRAM of the Millenium Meeting of the Brunswik Society

July 20 – July 22, 2000

Held at the MPI for Human Development, Lentzeallee 94, Berlin

Thursday, July 20.

Arrival, Registration (details see below)

18:00 -- Welcome

18:15 – 19:15 -- Keynote Address

The Career and Science of Egon Brunswik: Historical Reflections

Mitchell Ash (University of Vienna, Austria)

The careers and intellectual development of scientists and scholars who emigrated from Germany and Austria after the Nazi takeover of power in 1933 and 1938, respectively, continue to fascinate historians and many others, for good reasons. Recently, however, doubts have been raised as to whether a causal relations exists between forced migration and the undoubtedly significant scientific changes during this period. At first glance, Egon Brunswik's scientific development appears to confirm such doubts, because it seems to be so continuous. Just what is the relationship between continuity and change in Brunswik's career and science?

In these remarks, I will attempt to establish a framework for discussing this question. The attempt will focus on the following issues, among others: (1) The changing relations of philosophy and natural science, particularly scientific psychology, in German-speaking Europe and the United States between 1890 and 1930; (2) The institutional situations and prevailing research programs at the Vienna Psychological Institute in the 1920s and the Psychology Department at the University of California, Berkeley in the 1930s; (3) Brunswik's transfer from Vienna to Berkeley and the role of Edward Chace Tolman - a forced migration?; (4) Specific examples of continuity and transformation in Brunswik's scientific networks, theory and research from the 1930s to the 1950s.

To conclude, I will present some theses for discussion about Brunswik's early impact in the United States and Germany up to the 1970s.

19:15 -- Reception

Friday, July 21.

9:00 Keynote Address

The Adaptive Toolbox

Gerd Gigerenzer (MPI for Human Development)

The notion of an adaptive toolbox provides a framework for a non-optimizing vision of bounded rationality. The heuristics in the adaptive toolbox are composed from building blocks that guide search, stop search, and make decisions. The rationality of the heuristics is ecological rather than logical. Ecological rationality refers to the match between heuristics and environmental structures. The study of ecological rationality involves analyzing the structure of heuristics, the structure of environments, and the match between them. I outline the program of fast and frugal heuristics and connect it with the Brunswikian study of vicarious functioning.

Fast and Frugal Heuristics

10:00 Fast and frugal decision heuristics, a different look through Brunswik's lens

Werner W. Wittmann and Florian Schmiedek (University of Mannheim)

Gigerenzer and Goldstein have demonstrated that fast and frugal decision heuristics lead to astonishing results. Compared to a bunch of competitors, they often tied or even outperformed them in terms of predictive validity, e.g. the lens-model based multiple regression algorithms. Additionally they pointed to a paradox that under certain conditions knowing less is more. That research program originally started with using the city size paradigm, although it has now been tremendously extended to other areas as well. In reanalysing their original city size example we offer some different explanations for the less is more paradox via the lens-model equation. We also demonstrate that the superior performance of fast and frugal decision aids is probably due to their robustness concerning violations of assumptions that are necessary for due applications of multiple regression. At least in the city size example we are able to demonstrate

several violations and different strategies for how to check and avoid them. Applying these strategies brings multiple regression back to top performance.

10:30 Break

10:50 Ratiomorphic and Paramorphic: Traditions in Regression and Beyond

Elke Kurz (University of Tübingen)

11:20 Does policy capturing really capture the judgmental policies?

Ulrich Hoffrage (MPI for Human Development)

As a framework for describing people's judgment policies, social judgment theory mainly uses linear models, particularly multiple regression. Although neo-Brunswikians have mostly restricted themselves to this tool for describing judgments, "judgment analysis" is in principle open to testing other candidate models. Indeed, in Egon Brunswik's work one cannot find this restriction, and Ken Hammond (1996) recently pointed out that focusing on regression was a regrettable error. Among these other candidate models are fast and frugal heuristics, such as Take The Best. This simple, lexicographic heuristic is designed for pair comparison tasks: If the most valid cue discriminates between two objects, the heuristic will choose the object the cue favors; if the most valid cue does not discriminate, the next best cue is checked, and so on. In the present talk, I will address the question whether standard policy capturing (i.e., when based on multiple regression) is able to discriminate between several strategies that generated choices in pair comparison tasks.

11:50 Estimation in a J-shaped world: Letting the environment do the work

Ralph Hertwig (MPI for Human Development)

How do we arrive at estimates of real-world quantities, such as the number of people who die from heart attacks, or the population sizes of cities? Although researchers have tried to describe the forces underlying such estimates, to date there have been only a few attempts to work out precise mechanisms. We propose a simple heuristic that uses only some of the information available, requires only little computation, and thus allows for quick estimation in J-shaped distributions: The QuickEst heuristic. Simulations and analytical results suggest that this simple heuristic performs surprisingly well when compared to more

complex strategies (e.g., multiple regression).

12:20 When More is Less

Yanlong Sun & Ryan D. Tweney (Bowling Green State University, Ohio)

In a simulated yard sale task, participants were asked to sell a series of objects, each of which would attract three customers making a (randomly determined) offer. Subjects were told to maximize the total "take" from the sale. For each item, they could take any of the three offers at the time it was given, but could not go back to an earlier offer. A strategy derived from probability theory can increase the chance of choosing the best offer from 1/3 to 1/2 for each item, and had been considered the optimal strategy. Most of the participants did not find this strategy, although, surprisingly, half of them actually outperformed it. Several participants with advance knowledge of probability theory and of research in judgment and decision-making did find the strategy, but their performance turned out to be below the average score. An analysis of the data revealed that high-performing naive subjects had noticed that offers that "looked large" were worth accepting. By contrast, the "optimal" strategy assumes that the best prediction must be based on a single independent event with infinite possibilities and has no „lookback" to earlier trials that would permit such a simple and frugal heuristic. Naive subjects can thus outperform both normative rules and experts performing the task who attempt to discover normative rules.

12:50 Lunch (in the Cafeteria at the Institute)

Decision Styles and Utility

14:00 Genetic and environmental effects on decision styles and utility

White, V.M., Hopper, J.L. & Alexander Wearing (University of Melbourne, Australia)

Decision making and problem solving may be regarded as core psychological functions in that the level of their effectiveness is a major determinant of a person's well-being or utility. Normative theories of decision making assume that a rational decision maker maximizes his or her utility. There are different views about whether good decision makers are born that way, or whether decision making is a learned skill. To investigate whether (a) decision making and problem solving capability relates to utility, and (b) decision making and problem solving capability is primarily inherited or learned, a sample of 583 same sex pairs of twins (59% monozygotic and 41% dizygotic) completed a questionnaire that assessed decision styles and problem solving practices, personal characteristics, environmental events, and utility. Both genetic and environmental influences were

found in most variables measured and personal characteristics, decision styles, and environmental events combined to determine utility.

Applications

14:30 Relative Effectiveness of Different Interfaces to Ameliorate the Negative Effects of Time Pressure on Team Performance

Leonard Adelman, Sheryl Miller, and Cedric Yeo (George Mason University)

An experiment was performed to investigate the relative effectiveness of a perceptually-oriented interface versus one providing cognitive feedback to ameliorate the effect of increasing time pressure on the performance of hierarchical teams, which were represented conceptually by the multi-level lens model. The perceptually-oriented interface was more effective than the one providing cognitive feedback because its visual cues helped teams maintain a high percentage of judgments under increasing time pressure. The cognitive feedback condition did not maintain high judgment accuracy, as had been predicted. Only the time pressure manipulation significantly affected judgment accuracy. A causal model using lens model equation parameters and Multi-Level Theory constructs (e.g., team informity and staff accuracy) showed that the time pressure effect was fully mediated by decreasing task informity. As team informity decreased with increasing time pressure, staff accuracy decreased (due to lower G) and leader accuracy decreased (due to lower G and Rs). These results suggest that time pressure effects on a team's judgment accuracy may be due more to a breakdown in information flow than a breakdown in judgment processing.

15:00 Disagreement among experts: Comparison of physician judgment across five clinical tasks

Tom Stewart, Cynthia Leung, Anthony LaDuca (T.S.:Center for Policy Research, University at Albany; C.L.+A.L.: National Board of Medical Examiners, Philadelphia, PA)

Despite the important influence of task properties on judgment processes, few studies include multiple tasks. In our study, ten physicians completed five judgment tasks representing the following clinical problems: congestive heart failure, depression, diabetes, hypertension, and pneumonia. For each task, each physician judged 60 hypothetical cases varying on five or six cues. Agreement among the physicians differed across tasks. Differences among tasks and the clinical problems they represent will be examined as potential factors influencing disagreement.

15:30 Can Physician Judgment Be Assessed from Chart Review?

Thomas G. Tape, MD, Michael S. Jackson, MD (University of Nebraska, Omaha)

Retrospective review of patient charts is often used to assess the appropriateness and the quality of care, yet it is not known whether the medical record is a valid proxy for real patients. As part of a chest pain protocol study, we compared physician chart reviewers' judgments to the actual treating physicians judgments about the likelihood of heart disease and recommendations for hospital admission. We copied the emergency department records of 171 randomly selected adult chest pain patients during the six months before protocol implementation and 47 randomly selected patients during the six months of protocol use. Two physicians, blinded to patient identity and outcome reviewed emergency department records and estimated the probability of acute heart disease, categorized the chest pain as not cardiac, low suspicion, or high suspicion of acute cardiac disease, and indicated whether the patient should be admitted. We compared these judgments to the treating physicians' decisions. We measured cue utilization with clinical data collected during the protocol.

Correlation of reviewer probability estimates with each other was 0.69 before the protocol and 0.53 during the protocol. Agreement between each reviewer's decisions and actual decisions was similar: kappa of 0.7 before the protocol and 0.4 during the protocol. Both reviewers suggested admission for considerably more patients than were actually admitted. The correlation of each reviewer's probability estimates with other measures was similar: 0.46 with treating physicians judgments, 0.47 with actual admission decisions, and 0.60 with final diagnosis. Cue utilization showed a "take the best" pattern with chest pain as the major determinant for reviewer B and the treating physicians, and ECG change as the major determinant for reviewer A.

In summary, chart review was not a good proxy for actual patients in assessing the likelihood of heart disease or the need for hospital admission. Differences in cue extraction and cue utilization as well as cues not recorded in the paper record are possible reasons for the poor performance of the physician reviewers. These findings support Brunswik's idea of studying the decision maker in the context of his or her environment.

16:00 Meet the ABC Research Group

Theoretical Issues: Lens Model, Representative Design, Policy Capturing

17:00 Modeling the stakeholder: Four proposed conceptual extensions to the lens model

Elise Axelrad Weaver (Center for Policy Research, University at Albany, SUNY)

With four conceptual extensions, the lens model can be broadened from its current restriction to the individual during judgment of a static environment to model the individual as an active stakeholder, influencing the environment. The stakeholder has been defined as "any group or individual who can affect or is affected by the achievement of an organization's purpose" (Freeman, 1984). The stakeholder is characterized in this talk as having purpose, changing over time, using cues symbolically, and acting in a social context. I will draw on a model of neural network learning to inform these extensions as well as ideas from Brunswik's colleagues, Tolman and Bühler. (*R. Edward Freeman, 1984, Strategic Management: A Stakeholder Approach. Boston: Pitman Publishing, Inc., p. 53).

17:30 A Review of the Use of Representative Design in Social Judgement Theory Research

Mandeep. K. Dhami, R. Hertwig, & U. Hoffrage (M.D.: City University, Dept. of Psychology)

Social judgement theorists (SJT) have long expressed their commitment to the method of representative design, when studying human judgement and decision making. Representative design is a methodological consequence of the theory of probabilistic functionalism. Brunswik proposed that when studying an individual's achievement of a distal variable, the structural properties of the task environment (i.e., cue number, inter-correlations, ranges, distributions and validities) should be preserved. This contrasts with systematic design. He believed that representative design would allow the individual to exhibit his/her adapted processes used to accumulate, check, weight and integrate cues in order to achieve a distal variable. Moreover, this design thus yields findings that generalise beyond the experiment. In this paper we review the concept of representative design and assess the use of representative design in 50 years of SJT research that aimed to capture existing judgement policies. We hope to encourage a discussion of the future of representative design.

18:00 Unravelling self-insight: Idealization, inconsistency and poor assessment of covariation

Clare Harries and Nigel Harvey (University College London)

Subjective descriptions of judgement policies have been found to be imperfect.

This study tested three hypotheses: (1) That this is because subjective weights are obtained on just a single occasion after all judgments have been completed; (2) because people have tended to state their perception of an ideal way of responding rather than their perception of how they actually responded; and (3) because they experience difficulty in relating variation in stimulus dimensions to variation in quite different response dimensions. We tested these hypotheses by comparing (1) subjective assessments made on each judgment with those made once after all judgements; (2) subjective assessments of the ideal, with those of influence of information on own judgements and (3) ratings of the influence of multi-dimensional information with that on one dimension. Ninety-six students made sales forecasts on the basis of four bits of information over forty trials. They also stated the weight they placed on each one and the weight they should have placed on it. The means of weights stated on each trial were more appropriate than those stated at the end of all trials. Stated actual weights were very similar to stated ideal weights. Weights were more appropriate when forecasts and cues varied along the same dimension than when they did not. Thus all three factors appear to influence subjective descriptions of judgment policies.

18:30 – Buffet in the Institute’s garden

Saturday, July 22.

9:00 – 10:00 -- Keynote Adress

Sources of Judgment Bias in a Brunswikian World: A Cognitive-Environmental Approach

Klaus Fiedler (University of Heidelberg, Germany)

The purpose of the present paper is to illustrate, with reference to various empirical research paradigms, different ways in which judgment biases may reflect the structure and texture of the probabilistic stimulus environment, rather than distorted processes within the human mind. The basic tenet underlying these paradigms – most of which will be new even to proponents of Brunswikian ideas – is that latent properties of the environment are not amenable to direct assessment but have to be inferred from samples of observations. Samples provide the interface between cognition and the environment. Judgment biases arise because the environment places diverse constraints on which information is available for the sampling process, and because people lack the meta-cognitive devices for controlling and correcting these sampling constraints. In particular, environments constrain (a) how many observations are available for different judgment objects (sample size); (b) what focal attributes receive most attention; (c) how context

attributes modulate the diagnosticity of the same cues; (d) the compatibility of different cues to the same (distal) attribute; (e) whether spatial-temporal cues disambiguate the causal meaning of judgment cues; (f) the conditionality and search direction of information sampling; (g) whether observations about interrelated attributes stem from the same (multivariate) sample or from separate (univariate) samples; (h) whether useful cues are available for all task-relevant attributes or not; and (i) whether the cue systems available for inferring different attributes are separable or confounded. From such a cognitive- environmental perspective, alternative explanations for prominent judgment biases can be found and new biases can be derived, including expectancy biases, confirmation bias, base rate neglect, illusory correlations, pseudo-contingencies, Simpson's paradox, outgroup devaluation, and pragmatic-confusion effects.

Aging

10:00 Aging, Function Learning, and Extrapolation

Gerard Chasseigne and Celine Musielak (Universite Francois-Rabelais, Tours, France)

Studies that have been devoted to examining function learning have shown that elderly people learn direct relationships nearly as well as younger adults despite massive amounts of uncertainty in MCPL tasks and do not learn inverse relationships when the task involves multiple cues. One advantage of function learning is that it easily allows adapting to conditions in which cue values different from the ones used during learning are encountered. In other words, function learning allows an easy adaptation to conditions in which extrapolation or interpolation capacities are expected from the learner. Tests of extrapolation and interpolation after function learning sessions have been studied only in young adults. These studies have shown that participants extrapolate well beyond the range of learned responses, i.e., that interpolation is clearly achieved. Extrapolation and interpolation are critical throughout life, even in elderly people. The aim of the present study was to examine the relation between age and the ability to extrapolate and to interpolate after a training session of a linear (direct or inverse) function relating one cue and a criterion. The present study showed that extrapolation takes place on the basis of the function previously learned, and that the capacity of the elderly to extrapolate and interpolate is preserved despite quantitative differences with younger adults, especially when the relation learned is an inverse one. Our project is to continue to investigate the relation between aging and extrapolation with curvilinear cue-criterion relationships and in more complex situations involving multiple cues related probabilistically with the criterion.

10:30 Discussion of Chasseigne & Musielak's paper by

Shu-Chen Li (MPI for Human Development, from the Center for

Lifespan Psychology)

10: 40 Break

Brunswik in Eastern Europe

11:00 Teaching Brunswik

Lubomir Kostron (School of Social Studies, Masaryk University, Czech republic)

This presentation is meant to summarize my teaching experiences related to judgment and decision-making based upon Egon Brunswik's view. The presentation will raise a few basic questions for discussion: where we are (the contemporary state of the art) - how do we understand Brunswik's legacy, teaching didactics, what are the aims in teaching Brunswik in the future. Also, I would like to discuss the connection between teaching and academic research. What are the international research goals and implementation strategies for the future also? What are the possibilities of mutual co-operation (participation of students)?

Evolutionary Psychology the Brunswikian Way

11:30 How Probabilistic Functionalism Advances Evolutionary Psychology

Kenneth R. Hammond (paper read by Aurelio José Figueredo)

Three issues distinguish a Brunswikian evolutionary psychology from current approaches: first, its domain-independent rather than domain-specific theory of inference; second, its emphasis on a linear model as the organizing cognitive principle that makes domain-independence possible; third, its use of the correspondence and coherence metatheories to distinguish between environmental tasks. Each of these issues is discussed in detail and comparisons are drawn with current approaches in evolutionary psychology. But in the end, both the Brunswikian and contemporary approaches are to be seen as complementary, thus creating a much enlarged basis for evolutionary psychology.

12:00 A Brunswikian Optimality Model for the Evolutionary Psychology of Preparedness and Plasticity

Aurelio José Figueredo (University of Arizona, Tucson)

Although contemporary theorists no longer consider "instinct" and "learning" to be mutually exclusive categories, the currently popular view is that these phenomena lie instead along a single unidimensional continuum. An alternative two-parameter

model is proposed, based on a stochastic optimality theory of both biological preparedness and developmental plasticity. Brunswikian Probabilistic Functionalism defines behavioral adaptation as the matching of the functional utilizations of both stimuli and responses by the organism to the corresponding ecological validities of those stimuli and responses in the environment. The quantitative implications of this model are as follows: (1) the mean ecological validity coefficient over evolutionary time specifies the optimal initial potency of the prepared association, and (2) the variance of that coefficient specifies the optimal prepared plasticity of that association. These two parameters vary independently to produce selective pressures not correctly modeled by a unidimensional continuum. Differential predictions are derived and compared with the existing evidence.

12:30 General Discussion

13:00 – 14:00 Brunswik Research Award 2000 and Lunch

and for those who do not have to depart immediately:

15: 00 Boat Tour (3 hours) and Farewell Dinner

ORGANISATION

Hotel: Blue Band Hotel Berlin, Lützowplatz 17, D-10785 Berlin-Tiergarten, Phone ++49-30-2605-2700), info@hotel-berlin.de.

How to get there from the train station "Zoologischer Garten":

Taxi: about DEM 10,00 – 5 min.

Bus: Linie 100 til Lützowplatz about 5 min.

Metro: with the line 2 (direction Vinetastr.) 2 stops til Nollendorfplatz, exit Einemstr. about 5 min. walk

How to get there from the airport "Berlin Tegel":

Taxi: about DEM 30.00 – 25 min.

Bus: X 9 until Zoologischer Garten, then as above described, about 30 min.

How to get there from the airport "Tempelhof":

Taxi: about DEM 20.00 – 15 min.

Bus: Linie 341 til Lützowplatz, about 25 min.

Bus/S-Bahn/underground tickets (valid for all three means of transport) cost DM 3.90 for an individual ticket; one day tickets cost 7.80 DM. Before entering the train, get a ticket from one of the vending machines (first press „Tageskarte (AB)“, then pay 7.80 DM in coins or bills; then you have to stamp this ticket. Please keep the ticket because you may need it later again).

Institute: Max Planck Institut für Bildungsforschung, Lentzeallee 94, D-14195 Berlin-Dahlem, for a city map, see <http://www.stadtplan.net/brd/berlin/berlin/home.html>.

The meeting starts on Thursday, 6:00 p.m., at the Max Planck Institute. How do you get there from the hotel? We will use public transportation. For those who stay at the hotel, we propose gathering on Thursday at 5:00 p.m. at the front desk of the hotel. One of us will be there and guide you. If you miss this group, ask at the front desk how to get to the U-Bahn station „Nollendorfplatz“ (5 minute walk). From there, you take the U1 in the direction „Krumme Lanke“. Get out at Breitenbachplatz (after about a 20 minute ride). Now the Institute is within walking distance (5 min.). Take the middle-exit, on the corner there is the "Bistro at Breitenbachplatz", cross the street and go straight ahead, the next intersection is "Lentzeallee", turn to the left and it is the second building on the right hand side. There is also a map of the surroundings at the station. Keep your ticket, it is also valid for your way back to the hotel (if it is a one day ticket).

Conference fee is 100 DM (for students: 50 DM), payable in cash at the meeting. This covers: beverages on Thursday evening, lunch and dinner on Friday, coffee and cookies during breaks, a small lunch on Saturday, and the ticket for the boat trip.

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