

NEWSLETTER FOR THE INTERNATIONAL STUDY GROUP ON  
LEARNING PROBABILITY AND STATISTICS CONCEPTS

Volume 3, Number 1

January, 1990

Joan Garfield, Secretary and Editor  
340 Appieby Hall  
128 Pleasant Street S.E  
Minneapolis, MN 55455  
USA

Notes and Comments

Happy New Year! I've enjoyed hearing from many of our members, often by e-mail. What a great time and money saver e-mail is, especially for communicating between countries. As some of you realized, my e-mail address as listed in the last newsletter had an error - it should have been:

pqa6001@ca.acss.umn.edu

Here are some other e-mail addresses:

Mike Shaughnessy: shags@math.orst.edu (Note: Mike will not be at this address until 2 months from now - he'll be on sabbatical in Spain where among other things, he'll be teaching a seminar on teaching probability.)

Rolf Biehler: uidomf001@dbiun11.bitnet

Flavia Jolliffe: flavia.jolliffe@brunel.ac.uk@nsfnet .relay.asuk

Elana Joram: e-joram@utoroise.bitnet

Anne Hawkins: teve102@uk.ac.lon.educ.isis

Andee Rubin: rubin@bbn.com

Chip Bruce: bruce@bbn.com

Ann Rosebery: arosebery@bbn.com

\* \* \* \* \*

The production and mailing of this newsletter are supported by the Division of Science, Business, and Mathematics of the General College, University of Minnesota.

NEWS4.1

New Members

It's always so nice to see that more people are learning about our study group and would like to join the group. I would like to welcome the following new members:

Dr. Brian Greer  
School of Psychology  
Queen's University  
Belfast BT7 1NN  
Northern Ireland

Iddo Gal  
Department of Psychology  
University of Pennsylvania  
3815 Walnut Street  
Philadelphia, PA 19104  
USA

Cristina Esteley  
Larranaga 1S 3 B  
B. Nueva Cordoba  
5000 Cordoba  
Argentina

Professor Saverio Casella  
Universidad de la Republica  
Facultad de Humanidades y Ciencias  
Centro de Mathematica  
Edvardo Acevedo 1139  
Montevideo, Uruguay

Notes about New Members

Professor Casella, who has worked at the University of Pisa with E. Fischbein, is doing research on primary intuitions in probability. Casella will be developing a test for students aged 10 to 14, to determine the precise moment when curricular teaching of this subject should start. The results of the survey of Uruguayan children will be compared with children living in developed countries. Anyone interested in this project should contact Professor Casella.

Iddo Gal is a graduate student interested in the development of statistical reasoning in children and in research on understanding probabilistic processes. Gal and others will be presenting a paper entitled "How elementary school children reason about data and perform tasks requiring statistical reasoning" at the April, 1990 meeting of the National Council of Teachers of Mathematics.

Iddo Gal, Karen Rothschild (another of our members) and Daniel Wagner presented a paper last April entitled "Which Group is Better?" The Development of Statistical Reasoning in Elementary School Children". This paper presents results from a study which is part of the Statistical Reasoning in Children Project at the University of Pennsylvania. In the paper the authors identify several factors that affect children's ability to correctly draw conclusions from data. Anyone wishing to receive a copy of this paper may write to Iddo Gal.

Cristina Esteley has written three papers, all presented at meetings of math education in Argentina. The first is a proposal for introducing descriptive statistics from the first year of secondary school. A second presents results of a course in descriptive statistics for pupils 13 years old. The third is "An alternative conception of population in pupils 13 years old."

Other papers of interest

Ann Rosebery sent me a copy of the paper she presented at the American Educational Research Association (AERA) last March, "Linked visualizations and interactivity: developing a qualitative understanding of statistics." This article discusses the work of the NSF-funded "Reasoning under Uncertainty Project" at BBN. The approach to software and activity design are described and the "ELASTIC" software is used as an example. The recent work accomplished by this project as well as current directions are also discussed. Ann's address is:

BBN  
10 Moulton Street  
Cambridge, MA 02238  
USA

Elana Joram will be presenting a paper at AERA this spring, titled "Conceptual and Computational Understanding of Weighted Mean Problems." This paper described a study designed to determine how problem content and complexity affect people's performance on weighted mean problems, and to determine to what extent adults and adolescents understand the concept of a weighted mean as distinct from their ability to carry out the necessary computations to solve such problems. Subjects were adults and adolescents. Elana's address is:

The Ontario Institute for Studies in Education  
252 Bloor Street West  
Toronto, Ontario M5S 1V6  
CANADA

Ruma Falk sent me information on some articles of interest. She wrote: Let me draw your attention to an article concerning the ongoing discussion about tests of significance:

Chow, S.L. (1988). Significance test or effect size? Psychological Bulletin, 103 (No. 1), 105-110. This paper, which tries to defend the use of significance tests, is so full of confusions, errors and misconceptions, that in my opinion it ends up supporting the criticism of significance testing more than the latter procedure. As a sequel to this paper, there appeared two papers in Psychological Bulletin of July 1989 (Vol. 106, No. 1), by Folger and again by Chow (a response to Folger).

Another recently published article, that might interest the newsletter readers, is: Shimojo, S., & Ichikawa, S. (1989). Intuitive reasoning about probability: Theoretical and experimental analyses of the "problem of three prisoners", Cognition, 32, 1-24.

In this paper, the authors offer a modified version of the notorious problem of the three prisoners that is even more counterintuitive than the original one. They also analyze both problems theoretically and empirically, that is, they analyze subjects' responses and "subjective thresholds" that they employ for solution.

Ruma has recently written a paper titled "Another look at the probabilities of the notorious three prisoners" where she reanalyzes this problem.

NEWS4.3

Ruma also sent me a copy of her paper: "Judgment of coincidence: Mine versus yours" appeared in the American Journal of Psychology, Winter 1989. This paper reports the results of a study examining peoples judgment of the surprisingness of coincidences. The results suggest that the more personally meaningful a coincidence, the more suprising it seems.

Ruma has recently written a paper titled "Another look at the probabilities of the notorious three prisoners. Where she reanalyzes the counterintuitive problem.

Ruma Falk's address is:

Department of Psychology  
The Hebrew University of Jerusalem  
91905 Jerusalem  
Israel

Bob delMas gave me an article from the Journal of Experimental Psychology: Learning, Memory, and Cognition (1990, Vol. 16, No. 1). It is "Generalizing from the use of earlier examples in problem solving" by Ross and Kennedy. This paper describes four experiments that examine the hypothesis that the use of earlier examples promotes generalizations about problem types, thereby influencing what is learned about the domain. Probability problems were used in this study involving permutations, combinations, waiting times, and happening at least once.

Three major reports came out in the United States last year, all discussing mathematics education and calling for major reform. Each discusses the need for improved education in probability and statistics. These reports were:

The National Council of Mathematics Standards for Curriculum and Evaluation in School Mathematics, Everybody Counts: A Report to the Nation on the Future of Mathematics Education, and Science for all Americans. (produced by AAAS).

The NCTM report includes statistics and probability as key components of both the elementary and secondary level. A nice summary of these particular standards was written by Henry Kepner, Jr., and was included in the October, 1989 newsletter of the ASA/NCTM Statistics Teacher Network. Anyone wishing to review the newsletter should contact John Kinney, Rose-Hulman Institute of Technology, 5500 Wabash Avenue, Terre Haute, IN 47803 USA.

I received a copy of Random News (Summer 1989) from Peter Holmes. If any of you are not familiar with this free newsletter, it describes activities of the Centre for Statistical Education in Sheffield. Many of these activities focus on preparing statistics teachers and developing of teaching materials and software. To get on their mailing list, write to:

Centre for Statistical Education  
Department of Probability and Statistics  
University of Sheffield  
Sheffield, S3 7RH  
UK

That's all the news and notes. Please keep sending me information of your research projects, presentations, and papers. I enjoy hearing from you and will be organizing a meeting for members at ICOTS 3 in New Zealand this summer.

The next newsletter will be coming out in May.