

Table of Contents

Invited Talks

Invited Talk: Representations to Mediate Geospatial Collaborative Reasoning: A Cognitive-Semiotic Perspective	1
<i>Alan M. MacEachren</i>	
Invited Talk: Jon Barwise: A Heterogeneous Appreciation	2
<i>Keith Stenning</i>	

Tutorial 1 – Formal Approaches to Diagrams

Tutorial 1: Formal Approaches to Visual Language Specification and Understanding	3
<i>Kim Marriott</i>	

Tutorial 2 – Cognitive Approach to Diagrams

Tutorial 2a: Cognitive History of Science: The Roles of Diagrammatic Representations in Discovery and Modeling Discovery	4
<i>David Gooding</i>	
Tutorial 2b: Cognitive (Production System) Modelling of How an Expert Uses a Cartesian Graph	5
<i>Hermi Schijf</i>	
Tutorial 2c: The Coordination of External Representations and Internal Mental Representations in Display-Based Cognitive Tasks	6
<i>Jiajie Zhang</i>	

Logic and Diagrams

Positive Semantics of Projections in Venn-Euler Diagrams	7
<i>Joseph (Yossi) Gil, John Howse and Elena Tulchinsky</i>	
On the Completeness and Expressiveness of Spider Diagram Systems	26
<i>John Howse, Fernando Molina and John Taylor</i>	
Non-standard Logics for Diagram Interpretation	42
<i>Kim Marriott and Bernd Meyer</i>	
Reviving the Iconicity of Beta Graphs	58
<i>Sun-Joo Shin</i>	

Constraint Matching for Diagram Design: Qualitative Visual Languages74
Ana von Klopp Lemon and Oliver von Klopp Lemon

Picking Knots from Trees – The Syntactic Structure of Celtic Knotwork89
Frank Drewes and Renate Klempien-Hinrichs

Theoretical Concerns about Diagrams

Differentiating Diagrams: A New Approach 105
Jesse Norman

Logical Systems and Formality117
Patrick Scotto di Luzio

Distinctions with Differences: Comparing Criteria for
Distinguishing Diagrammatic from Sentential Systems 132
Keith Stenning

Cognition and Diagrams

How People Extract Information from Graphs: Evidence from
a Sentence-Graph Verification Paradigm 149
*Aidan Feeney, Ala K. W. Hola, Simon P. Liversedge, John M. Findlay
and Robert Metcalf*

Restricted Focus Viewer: A Tool for Tracking Visual Attention162
Alan F. Blackwell, Anthony R. Jansen and Kim Marriott

Communicating Dynamic Behaviors: Are Interactive Multimedia
Presentations Better than Static Mixed-Mode Presentations? 178
N. Hari Narayanan and Mary Hegarty

Capacity Limits in Diagrammatic Reasoning 194
Mary Hegarty

Human Communication with Diagrams

Recording the Future: Some Diagrammatic Aspects
of Time Management 207
Stuart Clink and Julian Newman

Lines, Blobs, Crosses and Arrows: Diagrammatic Communication
with Schematic Figures 221
Barbara Tversky, Jeff Zacks, Paul Lee and Julie Heiser

Animated Diagrams: An Investigation into the Cognitive Effects
of Using Animation to Illustrate Dynamic Processes 231
Sara Jones and Mike Scaife

A Comparison of Graphics and Speech in a Task-Oriented Interaction	245
<i>Patrick G. T. Healey, Rosemarie McCabe and Yasuhiro Katagiri</i>	

Diagramming Aesthetics: Modernism and Architecture in the 21st Century	257
<i>Mark J. Clayton</i>	

Diagrammatic Reasoning/Proof Systems

JVenn: A Visual Reasoning System with Diagrams and Sentences	271
<i>Hajime Sawamura and Kensuke Kiyozuka</i>	

A Proposal for Automating Diagrammatic Reasoning in Continuous Domains	286
<i>Daniel Winterstein, Alan Bundy and Mateja Jamnik</i>	

Playing with Diagrams	300
<i>Robert K. Lindsay</i>	

The Use of Intermediate Graphical Constructions in Problem Solving with Dynamic, Pixel-Level Diagrams	314
<i>George Furnas, Yan Qu, Sanjeev Shrivastava and Gregory Peters</i>	

Diagrams for Systems, Systems for Diagrams

Treatment of Diagrams in Document Image Analysis	330
<i>Dorothea Blostein, Edward Lank and Richard Zanibbi</i>	

Universal Arrow Foundations for Visual Modeling	345
<i>Zinovy Diskin, Boris Kadish, Frank Piessens and Michael Johnson</i>	

Diagrammatic Acquisition of Functional Knowledge for Product Configuration Systems with the Unified Modeling Language ..	361
<i>Alexander Felfernig and Markus Zanker</i>	

Evaluating the Intelligibility of Diagrammatic Languages Used in the Specification of Software	376
<i>Carol Britton, Sara Jones, Maria Kutar, Martin Loomes and Brian Robinson</i>	

Executing Diagram Sequences	392
<i>Joseph Thurbon</i>	

MetaBuilder: The Diagrammer's Diagrammer	407
<i>Robert Ian Ferguson, Andrew Hunter and Colin Hardy</i>	

Diagrammatic Control of Diagrammatic Structure Generation	422
<i>Stefan Gruner and Murat Kurt</i>	

Two-Dimensional Positioning as Visual Thinking	437
<i>Shingo Takada, Yasuhiro Yamamoto and Kumiyo Nakakoji</i>	

Reordering the Reorderable Matrix as an Algorithmic Problem453
Erkki Mäkinen and Harri Siirtola

Posters

Clouds: A Module for Automatic Learning of Concept Maps 468
Francisco Câmara Pereira and Amílcar Cardoso

A Diagrammatic Notation for Interval Algebra 471
Zenon Kulpa

Animation of Diagrams: An Aid to Learning? 475
Richard Lowe

Diagrams as Components of Multimedia Discourse:
A Semiotic Approach 479
John H. Connolly

Formalising the Essence of Diagrammatic Syntax 483
Corin Gurr and Konstantinos Tournas

Using Grids in Maps 486
Alexander Klippel and Lars Kulik

Case Analysis in Euclidean Geometry: An Overview 490
Nathaniel Miller

Bar Charts Recognition Using Hough Based Syntactic Segmentation 494
Yan Ping Zhou and Chew Lim Tan

Experimenting with Aesthetics-Based Graph Layout 498
Helen C. Purchase, David Carrington and Jo-Anne Alder

Author Index 503

Theory and Application of Diagrams

First International Conference, Diagrams 2000,

Edinburgh, Scotland, UK, September 1-3, 2000

Proceedings

Anderson, M.; Cheng, P.; Haarslev, V. (Eds.)

2000, XII, 508 p., Softcover

ISBN: 978-3-540-67915-8