

Table of Contents

Keynote

Life on the Line: Interacting with Temporal Event Sequence Representations	1
<i>Catherine Plaisant</i>	

Tutorial

Learning to Use the Openbox: A Framework for the Implementation of Heterogeneous Reasoning	3
<i>Dave Barker-Plummer, John Etchemendy, Michael Murray, Emma Pease, and Nik Swoboda</i>	

Workshops

3rd International Workshop on Euler Diagrams	4
<i>Peter Chapman and Luana Micallef</i>	
Technology Enhanced Diagrams Research Workshop	5
<i>Richard Cox and Jonathan San Diego</i>	
Accessible Graphics: Graphics for Vision Impaired People	6
<i>Cagatay Goncu and Kim Marriott</i>	

Graduate Student Symposium

Graduate Student Symposium of Diagrams 2012	7
<i>Lisa A. Best</i>	

Psychological and Cognitive Issues

Automatically Recognizing Intended Messages in Grouped Bar Charts	8
<i>Richard Burns, Sandra Carberry, Stephanie Elzer, and Daniel Chester</i>	
Representing Category and Continuum: Visualizing Thought	23
<i>Barbara Tversky, James E. Corter, Lixin Yu, David L. Mason, and Jeffrey V. Nickerson</i>	

Elucidating the Mechanism of Spontaneous Diagram Use
in Explanations: How Cognitive Processing of Text and Diagrammatic
Representations Are Influenced by Individual and Task-Related
Factors 35
Emmanuel Manalo and Yuri Uesaka

Diagram Layout

Orthogonal Hyperedge Routing 51
Michael Wybrow, Kim Marriott, and Peter J. Stuckey

Improved Layout for Data Flow Diagrams with Port Constraints 65
*Lars Kristian 'Klauske, Christoph Daniel Schulze,
Miro Spönemann, and Reinhard von Hanxleden*

Aesthetic Layout of Wiring Diagrams 80
Christian Ernstbrunner and Josef Pichler

Diagrams and Data Analysis

Points, Lines and Arrows in Statistical Graphs 95
Cengiz Acartürk

Enriching Indented Pixel Tree Plots with Node-Oriented Quantitative,
Categorical, Relational, and Time-Series Data 102
*Michael Burch, Michael Raschke, Miriam Greis, and
Daniel Weiskopf*

Interpreting Effect Size Estimates through Graphic Analysis of Raw
Data Distributions 117
Michael T. Bradley, Andrew Brand, and A. Luke MacNeill

Psychological Evidence of Mental Segmentation in Table Reading 124
*Takeshi Sugio, Atsushi Shimojima, and
Yasuhiro Katagiri*

Venn and Euler Diagrams

Proof-Theoretical Investigation of Venn Diagrams: A Logic Translation
and Free Rides 132
Ryo Takemura

Euler Diagram Encodings 148
Paolo Bottoni, Gennaro Costagliola, and Andrew Fish

Reasoning with Diagrams

Speedith: A Diagrammatic Reasoner for Spider Diagrams	163
<i>Matej Urbas, Mateja Jamnik, Gem Stapleton, and Jean Flower</i>	
Algebra Diagrams: A HANDi Introduction	178
<i>Peter C.-H. Cheng</i>	
Boolean Differences between Two Hexagonal Extensions of the Logical Square of Oppositions	193
<i>Hans Smessaert</i>	

Investigating Aesthetics

An Exploration of Visual Complexity	200
<i>Helen C. Purchase, Euan Freeman, and John Hamer</i>	
Diagram Ecologies – Diagrams as Science and Game Board	214
<i>Christoph Lueder</i>	
Dynamic Diagrams: A Composition Alternative	233
<i>Richard Lowe and Jean-Michel Boucheix</i>	

Applications of Diagrams

Diagrammatically-Driven Formal Verification of Web-Services Composition	241
<i>Petros Papapanagiotou, Jacques Fleuriot, and Sean Wilson</i>	
The Diagram of Flow: Its Departure from Software Engineering and Its Return	256
<i>S.J. Morris and O.C.Z. Gotel</i>	
DDA\Repository: An Associative, Dynamic and Incremental Repository of Design Diagrams	270
<i>Bharat Dave and Gwyllim Jahn</i>	
Structure, Space and Time: Some Ways That Diagrams Affect Inferences in a Planning Task	277
<i>David L. Mason, James E. Corter, Barbara Tversky, and Jeffrey V. Nickerson</i>	

Posters

What Can Concept Diagrams Say?	291
<i>Gem Stapleton, John Howse, Peter Chapman, Ian Oliver, and Aidan Delaney</i>	

CDEG: Computerized Diagrammatic Euclidean Geometry 2.0	294
<i>Nathaniel Miller</i>	
Design and Implementation of Multi-camera Systems Distributed over a Spherical Geometry.....	297
<i>Hossein Afshari, Kerem Seyid, Alexandre Schmid, and Yusuf Leblebici</i>	
Algebraic Aspects of Duality Diagrams	300
<i>Lorenz Demey</i>	
The Use of Diagrams in <i>Science</i> : An Examination of Trends in Articles Published in Science between 1880 and 2010.....	303
<i>Lillian P. Fanjoy, A. Luke MacNeill, and Lisa A. Best</i>	
A User Study on Curved Edges in Graph Visualisation	306
<i>Kai Xu, Chris Rooney, Peter Passmore, and Dong-Han Ham</i>	
Truth Diagrams: An Overview	309
<i>Peter C.-H. Cheng</i>	
Are Teachers Aware of Students' Lack of Spontaneity in Diagram Use? Suggestions from a Mathematical Model-Based Analysis of Teachers' Predictions.....	312
<i>Yuri Uesaka, Emmanuel Manalo, and Masanori Nakagawa</i>	
Modelling Delivery Information Flow: A Comparative Analysis of DSMs, DFDs and ICDs	315
<i>Christopher Durugbo, Ashutosh Tiwari, and Jeffrey R. Alcock</i>	
Completeness Proofs for Diagrammatic Logics	318
<i>Jim Burton, Gem Stapleton, and John Howse</i>	
Modelling Information Flow: Improving Diagrammatic Visualisations ...	321
<i>Christopher Durugbo</i>	
A Graph Calculus for Proving Intuitionistic Relation Algebraic Equations	324
<i>Renata de Freitas and Petrucio Viana</i>	
Genetic Algorithm for Line Labeling of Diagrams Having Drawing Cues	327
<i>Alexandra Bonnici and Kenneth Camilleri</i>	
A Logical Investigation on Global Reading of Diagrams	330
<i>Ryo Takemura, Atsushi Shimojima, and Yasuhiro Katagiri</i>	
Pictures Are Visually Processed; Symbols Are also Recognized	334
<i>Peter W. Coppin</i>	

How Do Viewers Spontaneously Segment Animated Diagrams of Mechanical and Biological Subject Matter?	337
<i>Jean-Michel Boucheix and Richard Lowe</i>	
Which Diagrams and When? Health Workers' Choice and Usage of Different Diagram Types for Service Improvement	340
<i>Gyuchan Thomas Jun, Cecily Morrison, Christopher O'Loughlin, and P. John Clarkson</i>	
Eye Movement Patterns in Solving Scientific Graph Problems	343
<i>Miao-Hsuan Yen, Chieh-Ning Lee, and Yu-Chun Yang</i>	
Formalising Simple Codecharts	346
<i>Jon Nicholson and Aidan Delaney</i>	
Notes about the London Underground Map as an Iconic Artifact	349
<i>Breno Bitarello, Pedro Atã, and João Queiroz</i>	
The Efficacy of Diagrams in Syllogistic Reasoning: A Case of Linear Diagrams	352
<i>Yuri Sato and Koji Mineshima</i>	
Author Index	357