1. Record Nr. UNISA996464407703316 Diagrammatic representation and inference: 12th international Titolo conference, Diagrams 2021, virtual, September 28-30, 2021, proceedings / / edited by Amrita Basu [and five others] Cham, Switzerland: ,: Springer, , [2021] Pubbl/distr/stampa ©2021 **ISBN** 3-030-86062-0 Descrizione fisica 1 online resource (570 pages) Lecture Notes in Computer Science; ; v.12909 Collana 006.6 Disciplina Soggetti Graphic methods Visual communication Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Includes index. Nota di contenuto Intro -- Preface -- Organization -- Abstracts of Keynotes -- A

Philosophical View of Fundamental Properties of Diagrams -- Why and How Should We Draw to Learn -- Learning from Visual Displays: Processes and Interventions -- Diagrams and Dicisigns: The Interrelations of Peirce's Doctrines of Propositions and Diagrammatical Reasoning -- Contents -- Design of Concrete Diagrams -- Aesthetics and Ordering in Stacked Area Charts -- 1 Introduction -- 2 Related Work -- 3 Aesthetic Criteria for Stacked Area Charts -- 3.1 Flatness: Minimising Wiggle -- 3.2 Straightness: Minimising Bumps -- 3.3 Continuity: Minimising Broken Layers -- 3.4 Significance: Minimising the Influence of Thin Layers -- 3.5 Choosing One or More Representative Lines -- 4 Ordering Layers -- 4.1 Objective Function --4.2 Optimisation Procedure -- 5 Benchmarking -- 6 Conclusion --References -- Interactive, Orthogonal Hyperedge Routing in Schematic Diagrams Assisted by Layout Automatisms -- 1 Introduction -- 2 Related Work -- 3 Interactive Routing of Hyperedges -- 4 Automatic Routing Considering Manual Changes -- 5 Conclusion -- References --Evidence of Chunking in a Simple Drawing Task -- 1 Introduction -- 2 Sample Analysis: Inferring Potential Chunks from Pauses -- 3 Discussion -- References -- Theory of Diagrams -- Considerations in Representation Selection for Problem Solving: A Review -- 1

Introduction -- 2 Cognitive Factors in Problem Solving -- 2.1 Problem Solving -- 2.2 Space Traversal and Expertise -- 2.3 Cognitively Effective Representations -- 3 Heterogeneity of Representations -- 3.1 Diagrammatic Aspects of Representations -- 3.2 Recommending a Representation -- 4 Computational Considerations of Representation -- 4.1 Homogeneous Systems -- 4.2 Semi-heterogeneity -- 4.3 Fully Heterogeneous Theorem Provers -- 5 Cognitive Analysis of Computational Systems -- 6 Conclusion. References -- Diagrams as Part of Physical Theories: A Representational Conception -- 1 Introduction -- 2 Conceptions of Scientific Theories -- 3 Semantic-Representational View on Theories -- 4 Case Study: Phase Space Diagrams in Statistical Mechanics -- 5 Conclusion -- References -- Diagrams and Mathematics -- Beyond Counting: Measuring Diagram Intensity in Mathematical Research Papers -- 1 Introduction -- 2 Detecting and Measuring Diagrams -- 3 Measuring Textual Proxies for Diagrams -- 4 Contemporary Use of Diagrams in Mathematical Research -- 5 Conclusions and Further Perspectives -- References -- On the Relationship Between Geometric Objects and Figures in Euclidean Geometry -- 1 Introduction -- 2 Geometric Figures in Practical Geometry -- 3 Relating Geometric Objects to Geometric Figures -- 4 Basic Features of the Role of Diagrams in Pure and Applied Geometry -- 5 Conclusions --References -- What Diagrams Are Considered Useful for Solving Mathematical Word Problems in Japan? -- 1 Introduction -- 2 Method -- 3 Results and Discussion -- References -- Diagrams and Logic --The Search for Symmetry in Hohfeldian Modalities -- 1 Introduction --2 Background and Related Works -- 3 Formalization -- 3.1 Language -- 3.2 First-Order Hohfeldian Relations -- 3.3 Second-Order Hohfeldian Relations -- 4 Hohfeldian Squares and Aristotelian squares -- 4.1 Deontic Square of Opposition -- 4.2 O'Reilly's (or Change-Centered) Potestative Square of Opposition -- 4.3 Force-Centered Potestative Square of Opposition -- 4.4 Outcome-Centered Potestative Square of Opposition -- 5 Of Lost Symmetries -- 5.1 Half-Liberties and Full-Liberties -- 5.2 Disjoint or Absolute Duty -- 6 Prototypical Relations Between the Two Squares -- 7 Conclusion -- References --Wittgenstein's Picture-Investigations -- 1 Introduction -- 1.1 The Presence of Literal Pictures. 1.2 The Function of Images -- 1.3 Propositions, Non-propositions and Pictures -- 1.4 Problem Statement and Present Aims -- 2 Method -- 2.1 Discussion -- 3 Case Studies -- 3.1 Propositions as Pictures

and Pictures as Propositions -- 3.2 Images Within Quotation Marks (Picture-Assertions) -- 3.3 Images Collocated with "example, thus:, like this:" (Picture-Samples) -- 3.4 Images Collocated with "Rule" (Picture-Rules) -- 3.5 Images Collocated with "Proof" (Picture-Proofs as Picture-Acts) -- 4 Conclusions and Future Research -- 4.1 Picture-sentences as Propositions -- 4.2 Picture-sentences as Rules -- 4.3 Future Research: The Potential for Pictures as Hinges -- References -- What Kind of Opposition-Forming Operator is Privation? -- 1 Introduction --2 TL: The Term Logic of Privation -- 2.1 Syntax of TL -- 2.2 Semantics and Consequence -- 3 Some Textual Evidence for Semantics of Privative Terms -- 3.1 Two-Term and Tree-Term Propositions -- 3.2 Correia's Analysis -- 4 Privation as Opposition-Forming Operator -- 5 Conclusion -- References -- Presenting Basic Graph Logic -- 1 Introduction -- 2 Syntax of Basic Graph Logic -- 3 Semantics of Basic Graph Logic -- 4 Validity and Consequence in Basic Graph Logic -- 5 Diagrammatic Proofs in Basic Graph Logic -- 6 Final Remarks --References -- Schopenhauer's Partition Diagrams and Logical Geometry -- 1 Introduction -- 2 Aristotelian Relations and -Structures -- 3 The

Context of Schopenhauer's Partition Diagrams -- 4 Schopenhauer's Partition Diagrams -- 5 From Partition Diagrams to -Structures -- 6 Conclusion -- References -- Revisiting Peirce's Rules of Transformation for Euler-Venn Diagrams -- 1 Introduction -- 2 Rules 1 to 3 -- 3 Rule 4 -- 4 Rules 5 to 6 -- 5 Comparison with Modern Diagrammatic Systems -- 6 Conclusion -- References -- Tractarian Notations -- 1 Tractarian Extensionality -- 2 Propositional Signs. 3 Tabular and Operational Notations -- References -- Equivalence Proof for Intuitionistic Existential Alpha Graphs -- 1 Introduction -- 2 The System of Intuitionistic Alpha Graphs -- 3 From Formulas to Graphs -- 4 A System of Strings -- 5 From Graphs to Formulas -- 6 Concluding Remarks -- References -- Aaron Schuyler: The Missing Link Between Euler and Venn Diagrams? -- 1 Schuyler's Role in the Venn-Hamilton Dispute -- 2 A Shared Mistake: Does the Exclusion Really Have an Unambiguous Representation in the Euler Diagram? -- 3 No Non-s is Non-p:A Surprising Diagram -- 4 How to Represent Four Classes Using Only Two Intersecting Circles -- 5 Conclusions --References -- Validity as Choiceless Unification -- 1 Introduction -- 2 Universal Syllogisms as Trios of Total Inclusion -- 3 Universal Syllogisms as Trios of Total Exclusion -- 4 Particular Syllogisms -- 5 Conclusive Remarks -- References -- Truth Tables Without Truth Values: On 4.27 and 4.42 of Wittgenstein's Tractatus -- 1 Introduction -- 2 The Formulas Explained from a Combinatorial Point of View -- 3 Tautology and Contradiction -- 4 Wittgenstein's Truth Tables -- 5 Truth Tables Without Truth Values -- References -- Combining and Relating Aristotelian Diagrams -- 1 Introduction -- 2 Relating Diagrams -- 3 Combining Diagrams -- 4 Examples -- 5 Conclusion and Outlook -- References -- Residuation in Existential Graphs -- 1 Introduction -- 2 Beta Graphs and Relational Operations -- 3 Residuation in Existential Graphs -- 4 Two Further Examples of Residuation in EGs -- 5 Concluding Remarks -- References -- On Identity in Peirce's Beta Graphs -- 1 Introduction: Peirce's Beta System for Existential Graphs -- 2 The Logic of Identity in the Beta System -- 3 Existential Graphs as an Analytical Tool -- 4 The Function of the Line of Identity -- 5 Conclusions -- 1. References. Peirce's Diagrammatic Solutions to `Peirce's Puzzle' -- 1 Introduction -- 2 Discussion and Conclusions -- References -- What Are Rules for? A Carroll-Peirce Comparison -- 1 Introduction -- 2 An Instructive Development -- 3 What Are Rules for? -- References -- A Diagrammatic Representation of Hegel's Science of Logic -- 1 Introduction -- 2 Allihn's Antibarbarus Logicus and the Hegel Diagram -- 3 Interpretation of Allihn's Hegel Diagram -- 4 Discussion --References -- Jin Yuelin's Simplification of Venn Diagrams -- 1 Introduction -- 2 Venn Diagrams and Existential Graphs -- 3 Venn Diagrams in Jin Yuelin's 1935 Book Logic -- 4 Some Remarks on Dashed Circles in Venn Diagrams -- 5 Conclusion -- References --Venn Diagrams with "Most": A Natural Logic Approach -- 1 Introduction -- 2 Rescher's Diagram -- 3 Two Comments on Rescher's Rules -- 4 Arrow for "Most" in Natural Logic -- 5 Conclusion -- References --New Representation Systems -- New Representations of Modal Functions -- 1 Introduction -- 2 Boolean Operations -- 2.1 Unary Boolean Operations -- 2.2 Binary Boolean Operations -- 3 Modal Operations -- 3.1 Unary Modal Functions -- 3.2 Unary Modal Operations on A2 -- 3.3 Modal Functions as Moody Truth-Functions --4 Binary Modal Functions -- 5 Conclusion -- References --Diagramming Imprecise and Incomplete Temporal Information -- 1 Introduction -- 2 Building Blocks -- 3 Applicability to Temporal Relations -- 4 Combining Intervals and Points -- 5 Future Directions --

References -- Comics and Diagrams: An Introductory Overview -- 1 Introduction: The Impossible Definition(s) -- 1.1 Comics, Maps and Diagrams -- 1.2 The Grid -- 2 The Evolutionary Structure -- 3 Micro-narrations -- 4 Centripetal Narrations -- 5 Conclusions -- References -- Analysis of Diagrams -- Image Schemas and Conceptual Blending in Diagrammatic Reasoning: The Case of Hasse Diagrams. 1 Introduction.