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# Conceptual Structures: Applications, Implementation and Theory

Third International Conference  
on Conceptual Structures, ICCS '95  
Santa Cruz, CA, USA, August 14-18, 1995  
Proceedings



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# Preface

Conceptual structures are a modern treatment of Charles Sanders Peirce's Existential Graphs, developed in 1896 as a graphic notation for classical logic with higher order extensions. Peirce viewed existential graphs as "his luckiest discovery" and "a logic of the future".

John Sowa showed that conceptual graphs can be mapped to classical predicate calculus or order sorted logic, and are thus seen as a (graphic) notation for logic. However, it is the topological nature of formulas (topology was a field Peirce helped develop) which conceptual graphs make clear, and which can be exploited in reasoning and processing. Conceptual graphs are intuitive because they allow humans to exploit their powerful pattern matching abilities to a larger extent than does the classical notation. Conceptual graphs can be viewed as an attempt to build a unified modeling language and reasoning tool. Conceptual graphs can model data, functional, and dynamic aspects of systems. They form a unified diagrammatic tool which can integrate entity-relationship diagrams, finite state machines, petri nets, and dataflow diagrams.

These proceedings include the best papers presented at the Third International Conference on Conceptual Structures (ICCS'95), held at the University of California at Santa Cruz, California, August 14-18, 1995. The annual ICCS conference is the primary forum for reporting progress in conceptual graph research. The papers in the proceedings can be broadly classified into the following categories: applications, natural language, programming in conceptual graphs, machine learning / knowledge acquisition, hardware and implementation, graph operations, and ontologies and conceptual graph theory.

This conference was sponsored by:

- IBM, Santa Teresa Laboratory, San Jose
- University of California at Santa Cruz
- Royal Melbourne University of Technology, Australia.
- AAAI (American Association of Artificial Intelligence).

We thank all the individuals and institutions who contributed to making this conference a success. We thank all the authors and the editorial staff of Springer-Verlag for making this book a valuable contribution in the knowledge representation research field.

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