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| Nota di contenuto | Rewriting -- Rewriting Logic Semantics: From Language Specifications to Formal Analysis Tools -- A Redundancy Criterion Based on Ground Reducibility by Ordered Rewriting -- Efficient Checking of Term Ordering Constraints -- Improved Modular Termination Proofs Using Dependency Pairs -- Deciding Fundamental Properties of Right-(Ground or Variable) Rewrite Systems by Rewrite Closure -- Saturation-Based Theorem Proving -- Redundancy Notions for Paramodulation with Non-monotonic Orderings -- A Resolution Decision Procedure for the Guarded Fragment with Transitive Guards -- Attacking a Protocol for Group Key Agreement by Refuting Incorrect Inductive Conjectures -- Combination Techniques -- Decision Procedures for Recursive Data Structures with Integer Constraints -- Modular Proof Systems for Partial |

Functions with Weak Equality -- A New Combination Procedure for the Word Problem That Generalizes Fusion Decidability Results in Modal Logics -- Verification and Systems -- Using Automated Theorem Provers to Certify Auto-generated Aerospace Software -- argo-lib: A Generic Platform for Decision Procedures -- The ICS Decision Procedures for Embedded Deduction -- System Description: E 0.81 -- Reasoning with Finite Structure -- Second-Order Logic over Finite Structures -- Report on a Research Programme -- Efficient Algorithms for Constraint Description Problems over Finite Totally Ordered Domains -- Tableaux and Non-classical Logics -- PDL with Negation of Atomic Programs -- Counter-Model Search in Gödel-Dummett Logics -- Generalised Handling of Variables in Disconnection Tableaux -- Applications and Systems -- Chain Resolution for the Semantic Web -- Sonic — Non-standard Inferences Go OilEd -- TeMP: A Temporal Monodic Prover -- Dr.Doodle: A Diagrammatic Theorem Prover -- Computer Mathematics -- Solving Constraints by Elimination Methods -- Analyzing Selected Quantified Integer Programs -- Interactive Theorem Proving -- Formalizing O Notation in Isabelle/HOL -- Experiments on Supporting Interactive Proof Using Resolution -- A Machine-Checked Formalization of the Generic Model and the Random Oracle Model -- Combinatorial Reasoning -- Automatic Generation of Classification Theorems for Finite Algebras -- Efficient Algorithms for Computing Modulo Permutation Theories -- Overlapping Leaf Permutative Equations -- Higher-Order Reasoning -- TaMeD: A Tableau Method for Deduction Modulo -- Lambda Logic -- Formalizing Undefinedness Arising in Calculus -- Competition -- The CADE ATP System Competition.

Sommario/riassunto

This volume constitutes the proceedings of the 2nd International Joint Conference on Automated Reasoning (IJCAR 2004) held July 4–8, 2004 in Cork, Ireland. IJCAR 2004 continued the tradition established at the first IJCAR in Siena, Italy in 2001, which brought together different research communities working in automated reasoning. The current IJCAR is the fusion of the following conferences: CADE: The International Conference on Automated Deduction, CALCULEMUS: Symposium on the Integration of Symbolic Computation and Mechanized Reasoning, FroCoS: Workshop on Frontiers of Combining Systems, FTP: The International Workshop on First-Order Theorem Proving, and TABLEAUX: The International Conference on Automated Reasoning with Analytic Tableaux and Related Methods. There were 74 research papers submitted to IJCAR as well as 12 system descriptions. After extensive reviewing, 26 research papers and 6 system descriptions were accepted for presentation at the conference and publication in this volume. In addition, this volume also contains papers from the three invited speakers and a description of the CADE ATP system competition. We would like to acknowledge the enormous amount of work put in by the members of the program committee, the various organizing and steering committees, the IJCAR officials, the invited speakers, and the additional referees named on the following pages. We would also like to thank Achim Brucker and Barbara Geiser for their help in producing this volume.
