Certified Unsolvability in Classical Planning Bibliography

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ICAPS 2020

Certifying Algorithms and Proof Systems

 Ross M. McConnell, Kurt Mehlhorn, Stefan Näher, Pascal Schweitzer.

Certifying Algorithms. Computer Science Review 2011

- introduces the concept of certifying algorithms
- Mohammad Abdulaziz, Peter Lammich. A Formally Verified Validator for Classical Planning Problems and Solutions. ICTAI 2018
 - plan validator built with theorem prover
 - shows that VAL/INVAL still contain bugs (fringe cases)
- Gerhard Gentzen.

Untersuchungen über das logische Schließen. I. Mathematische Zeitschrift 1935

• introduces the concept of natural deduction

Unsolvability Certificates

 Salomé Eriksson, Gabriele Röger, Malte Helmert. Unsolvability Certificates for Classical Planning. ICAPS 2017

- inductive certificates
- Salomé Eriksson, Gabriele Röger, Malte Helmert. A Proof System for Unsolvable Planning Tasks. ICAPS 2018
 - first version of the unsolvability proof system
- Salomé Eriksson.

Certifying Planning Systems: Witnesses for Unsolvability. Ph.D. Dissertation, University of Basel.

- description and comparison of both inductive certificates and unsolvability proof system
- augmentations to proof system
- ${\ensuremath{\,\circ\,}}$ analysis of efficient verification with $R\ensuremath{-}$ formalisms

Representation formalisms

• Adnan Darwiche, Pierre Marquis.

- A Knowledge Compilation Map. JAIR 2002
 - thorough analysis of different knowledge representations
 - describes operations for R-formalisms
- Stefan Edelkamp, Peter Kissmann. On the Complexity of BDDs for State Space Search: A Case Study in Connect Four. AAAI 2011
 - shows that information like mutexes cannot be efficiently encoded in one BDD

Planning techniques

• Marcel Steinmetz, Jörg Hoffmann.

State space search nogood learning: Online refinement of critical-path dead-end detectors in planning. Aritifical Intelligence 2017

- iterative refinement of h^{C} specialized on finding dead-ends
- Malte Helmert, Patrik Haslum, Jörg Hoffmann, Raz Nissim. Merge-and-Shrink Abstraction: A Method for Generating Lower Bounds in Factored State Spaces. Journal of the ACM 2014

translation from M&S representation to ADD

- Malte Helmert, Gabriele Röger, Silvan Sievers. On the Expressive Power of Non-Linear Merge-and-Shrink Representations. ICAPS 2015
 - non-linear merge strategies cannot be represented by ADDs
- Vidal Alcázar, Álvaro Torralba.

A Reminder about the Importance of Computing and Exploiting Invariants in Planning. ICAPS 2015

• description of the h^2 preprocessor used in many planners