Towards the Compression of First-Order Resolution Proofs by Lowering Unit Clauses

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Proof Compression Motivation

an accessible, good motivational example for proof compression

Propositional Proof Representation/Definition

introduction to proofs as we're going to see them, ideally formally and with a small example

Resolution

a quick introduction to resolution, with a small propositional example

Deletion

how deleting subproofs or edges in proofs affect them

Redundancy

types of redundancy we hope to remove, small examples (before/after proofs; not animated)

First-Order Proofs

key differences from propositional case; example of first order proofs

Unification/Unifying Resolution

definition (incl. mgu); example of unifying resolution

Contraction

definition; small example

LowerUnits

brief high level description; complexity
probably not pseudo-code

Propositional Example

quick, clear example of LU (animated), perhaps showing how one of
the redundancies described before is fixed

First Order Challenges I

example 1 demonstrated

First Order Challenges II

example 2 demonstrated; definition of pre-deletion unification property

First Order Challenges III

example 2 demonstrated; definition of post-deletion unification property

First Order Lower Units Ideas/Principles

briefly mention all ideas, e.g. quadratic time naive approach to deal
with both properties

Simple/Greedy First Order Lower Units

introduce simpler idea, make compromises explicit and list benefits
high level description
(probably not pseudo-code, but list # of traversals, complexity, etc)

First Order Example

small, animated example

Experiment Setup

proof sources, systems used, etc.

Results I

at least one or two of the more informative graphs

Results II

text summary of results (numbers, percentages, times, etc)

Conclusion

summary
future work (FORPI)
source link