Seminar: Selected Topics in Logic and Verification

A SUMMARY ON: A PIVOTING ALGORITHM FOR CONVEX HULLS AND VERTEX ENUMERATION OF ARRANGEMENTS AND POLYHEDRA

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Abstract

Test

Contents

- What audience? students with simple to no prior knowledge
- Don't just formulate presentation in words → add more stuff from paper
- add facet enumeration
- future work → paper citing this paper
- rewrite their definitions with yours for extra points
- add some of the theorems from the Simplex summary

1 Polyhedra and Arrangements

2 The Vertex Enumeration Problem

Definition of problem
introduction by example

2.1 Duality to the Facet enumeration problem

see what is written in Avis paper and copy it

2.2 Types of approaches

Motzkin vs Pivot based methods

3 Simplex algorithm

3.1 Linear programs

3.2 The Simplex-Algorithm

- what does is do?
- How does it work
- why does it work? → translate some stuff from last presentation

4 Avis and Fukudas Algorithm

4.1 How to move up the tree?

Bland's rule and Criss-Cross rule

4.2 What is it even doing?

4.3 Degeneracy

with visual example from presentation

4.4 Why is that good?

Complexity

5 Future Work based on this

References

[1] Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest und Clifford Stein. *Introduction to Algorithms*. Third Edition. The MIT Press, 2009.