GASC 0.9
Geometry Automated Provers Systems Competition

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The Setup

Hardware

► Off-site (Mathematics Department, University of Coimbra)
► Intel(R) Core(TM) i7-4770 CPU @ 3.40 Ghz with 16 GiB RAM

Software

► GNU/Linux (Debian)
► Two shell scripts: gasc2021run.sh and gasc2021results.sh
► OGPCP tools
Specificity and Goals

Specificity of Geometry

- Specific sets of axioms for different geometries
- Specific methods and implementations
- Proofs produced maybe relevant
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Specificity of Geometry

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GASC Goals

- Creation of a set of problems
- Creation of a common format
- Improve existing GATPs and create new ones
- Create a ranking of GATPs
## Organization

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**Competition Committe**
- Deploy de competition
Rankings and Benchmarks

Rankings Every competition must have a winner...

- Problem: how to rank?
- Solution: time...
Rankings and Benchmarks

**Rankings** Every competition must have a winner...

- **Problem:** how to rank?
- **Solution:** time...

- **Problem:** how to measure the chosen criteria?
- **Solution:** CPU time
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- Problem: how to rank?
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- Problem: how to measure the chosen criteria?
- Solution: CPU time

**Benchmark sets** GATPs must have problems to solve

- Problem: how to assess if a set is adequate?
- Solution: problems from TGTP
Common Format

Allow problems to used in different contexts and by different tools

Solution: First Order Form used by CASC

▶ Pros:
  ▶ Human-readable
  ▶ Exists and is being used
  ▶ TPTP has a considerable amount of geometry problems

▶ Cons:
  ▶ Not XML (?!?)
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Problem: Is it adequate?
Competition Deployment and Other Problems

Competition Deployment

- On-site vs. off-site?
- Third-party vs. individual hardware?
Competition Deployment and Other Problems

Competition Deployment

- On-site vs. off-site?
- Third-party vs. individual hardware?

Other Problems

- How to formally check a proof? (e.g. Coq)
- How to guarantee the reproducibility of the result?
- How to achieve and measure the progress of the SotA?
- How to make the results and competing tools available so that they can be leveraged in subsequent events?
Conclusions and Future Work

Immediate future:

- Organizational issues
- How to rank a GATP
- Define sets of problems
Conclusions and Future Work

Immediate future:
- Organizational issues
- How to rank a GATP
- Define sets of problems

GASC editions:
- 0.1 at ThEdu’19
- 0.2 for the post-proceedings of ThEdu’19
- 0.9 at ADG 2021
- 1.0 . . .
Obrigado / Gracias / Merci / Danke