An Extensible Framework for Variable-Precision Data-Flow Analyses in MPS

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Fault Detection

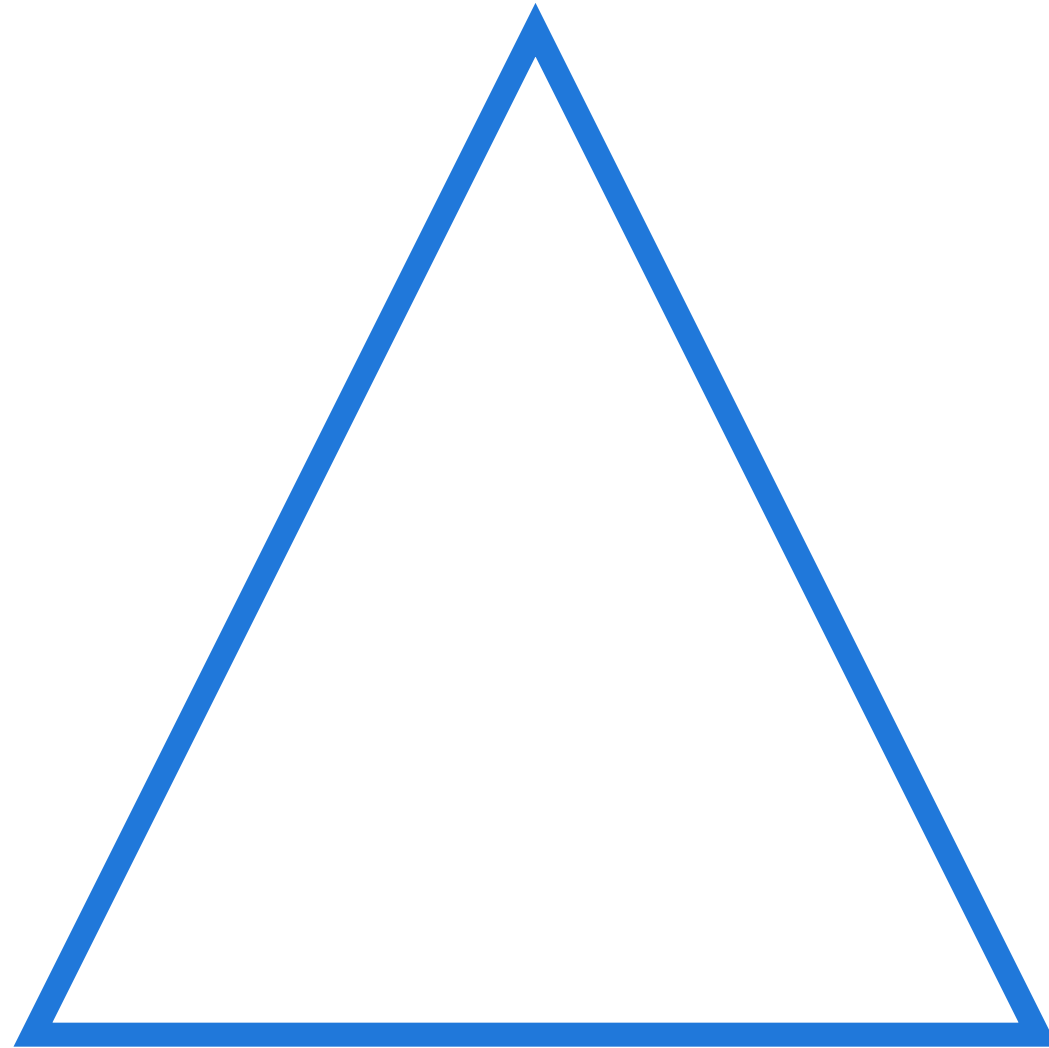Optimizations

Refactorings

We can't have it all!

Runtime Performance

*-sensitive
(Precision)

Memory Use

Problem Statement / Challenges

Dedicated support for program analyses in MPS.

Problem Statement / Challenges

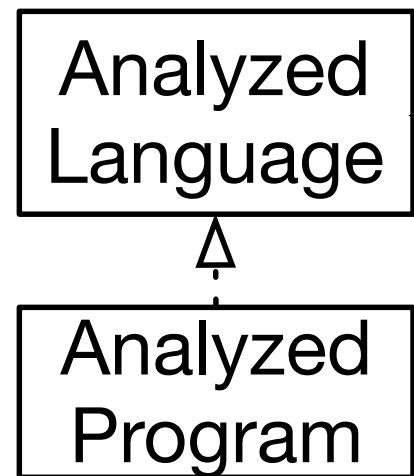Variable-precision analyses: trade off precision for runtime performance and memory use.

Problem Statement / Challenges

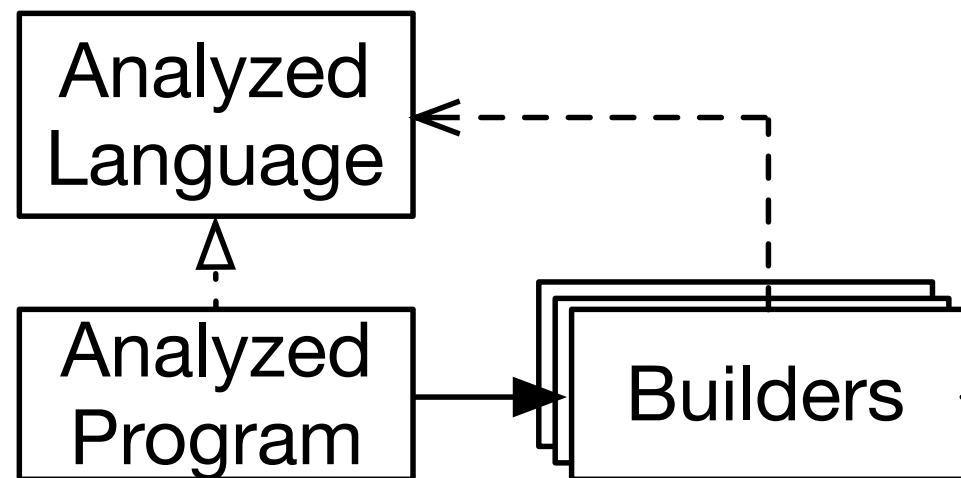Extensible analyses to not limit language extensions.

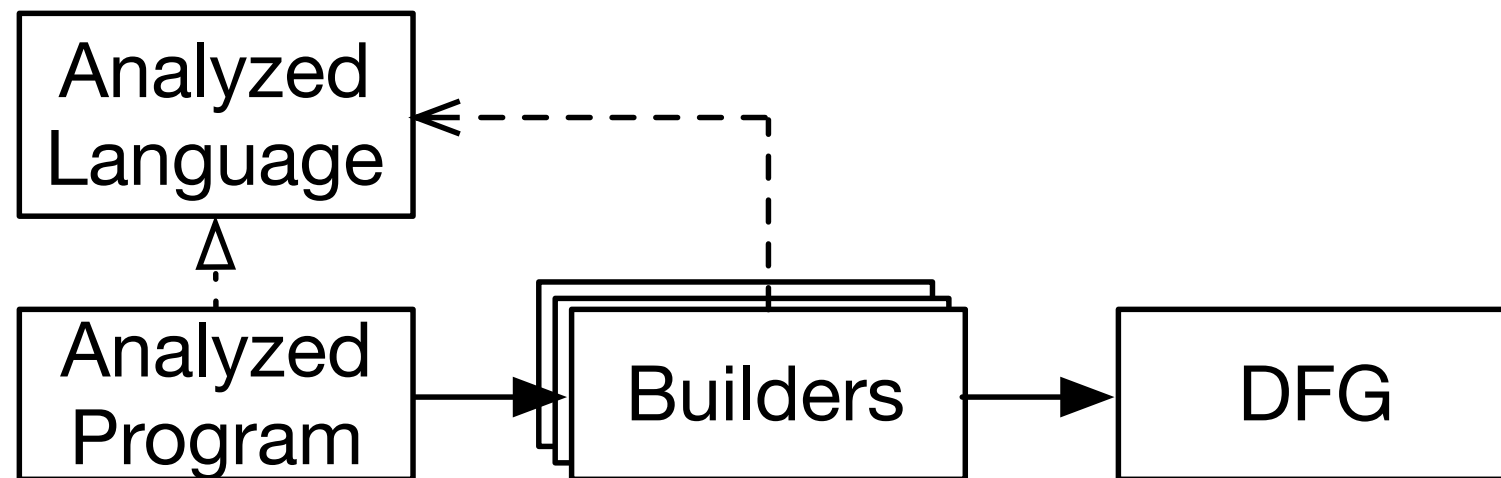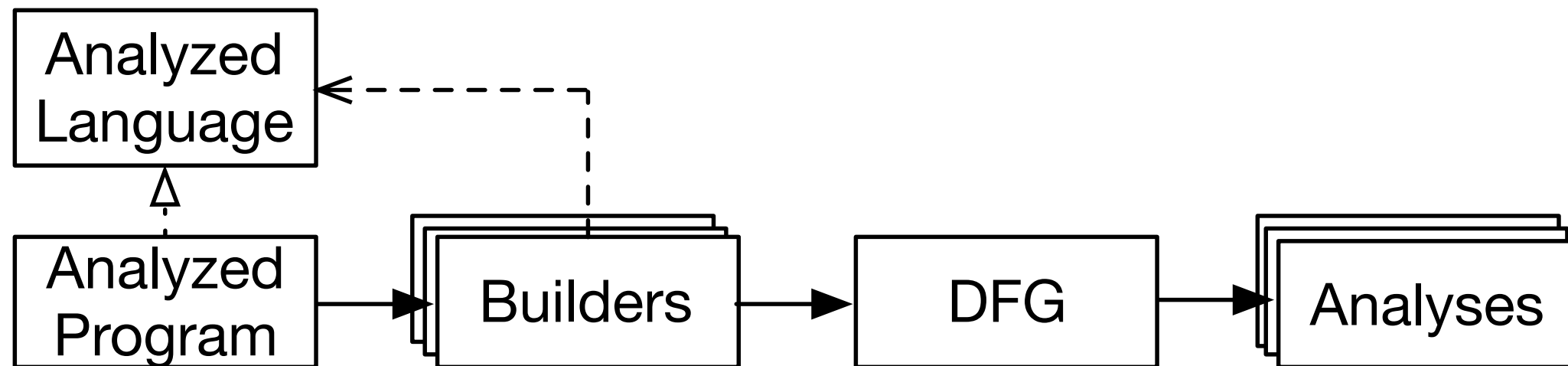# MPS-DF Components

Analyzed
Language

MPS-DF Components

```
┌─────────────┐
│ Analyzed    │
│ Language    │
└─────────────┘
       ▲
       ┊
┌─────────────┐
│ Analyzed    │
│ Program     │
└─────────────┘
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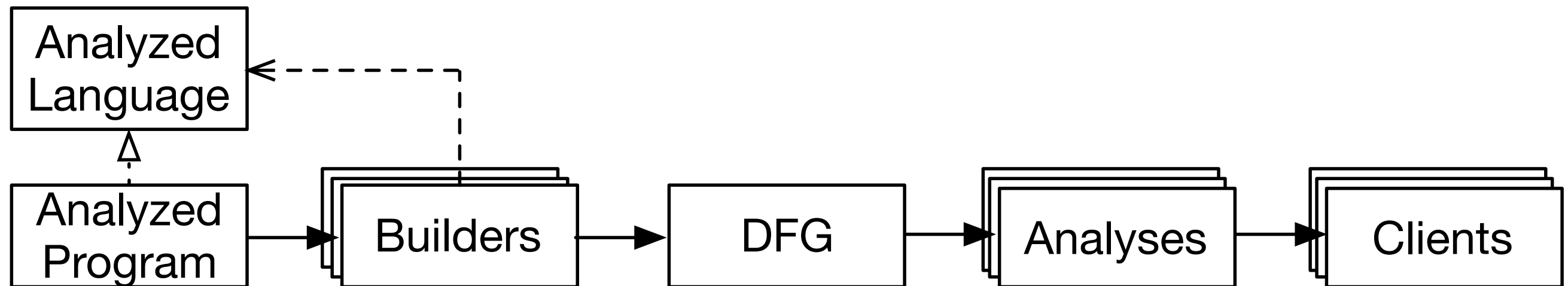
MPS-DF Components

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Conclusions

▸ MPS-DF provides dedicated support for data-flow analyses

▸ Supports variable-precision and extensibility

▸ Widely used in mbeddr and in other commercial projects built on top of MPS (insurance, embedded, concurrency)

Videos & docs: https://szabta89.github.io/projects/df.html

More questions? tamas.szabo@itemis.de