Tracking Down Software Changes Responsible for Performance Loss

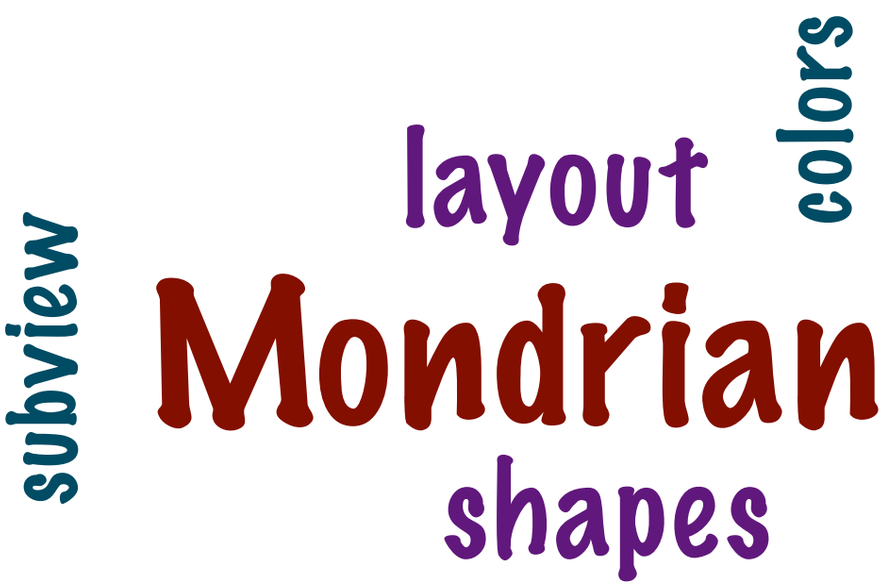
Juan Pablo Sandoval & Alexandre Bergel
Universidad de Chile

Mondrian

layout

Mondrian

shapes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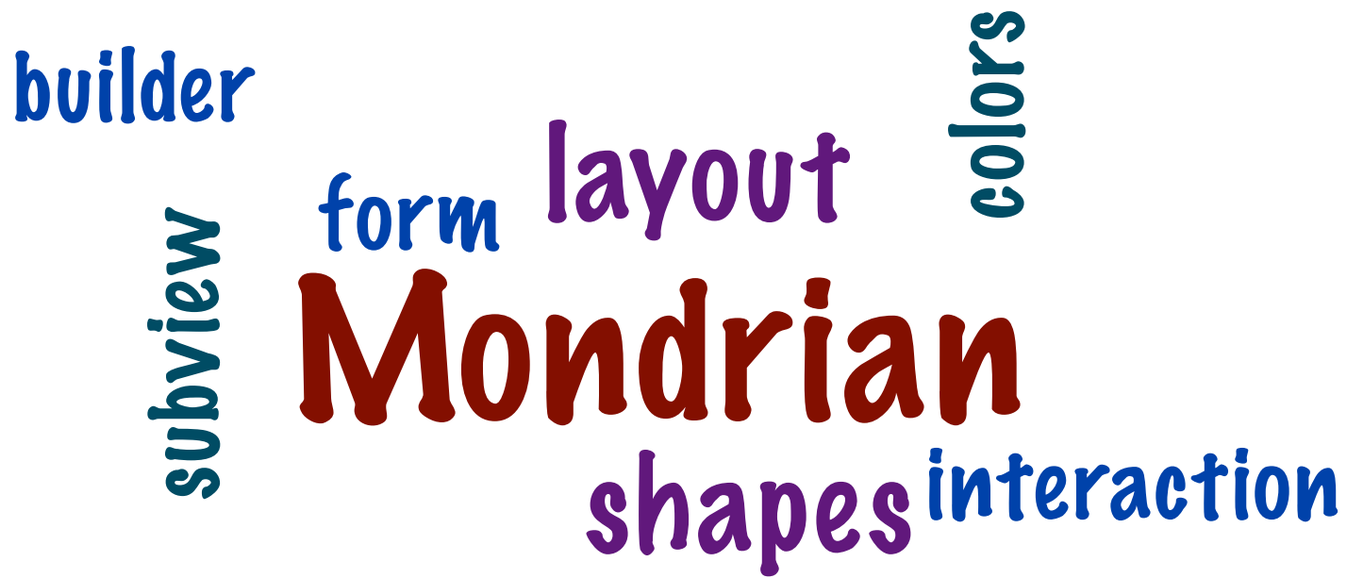
shapes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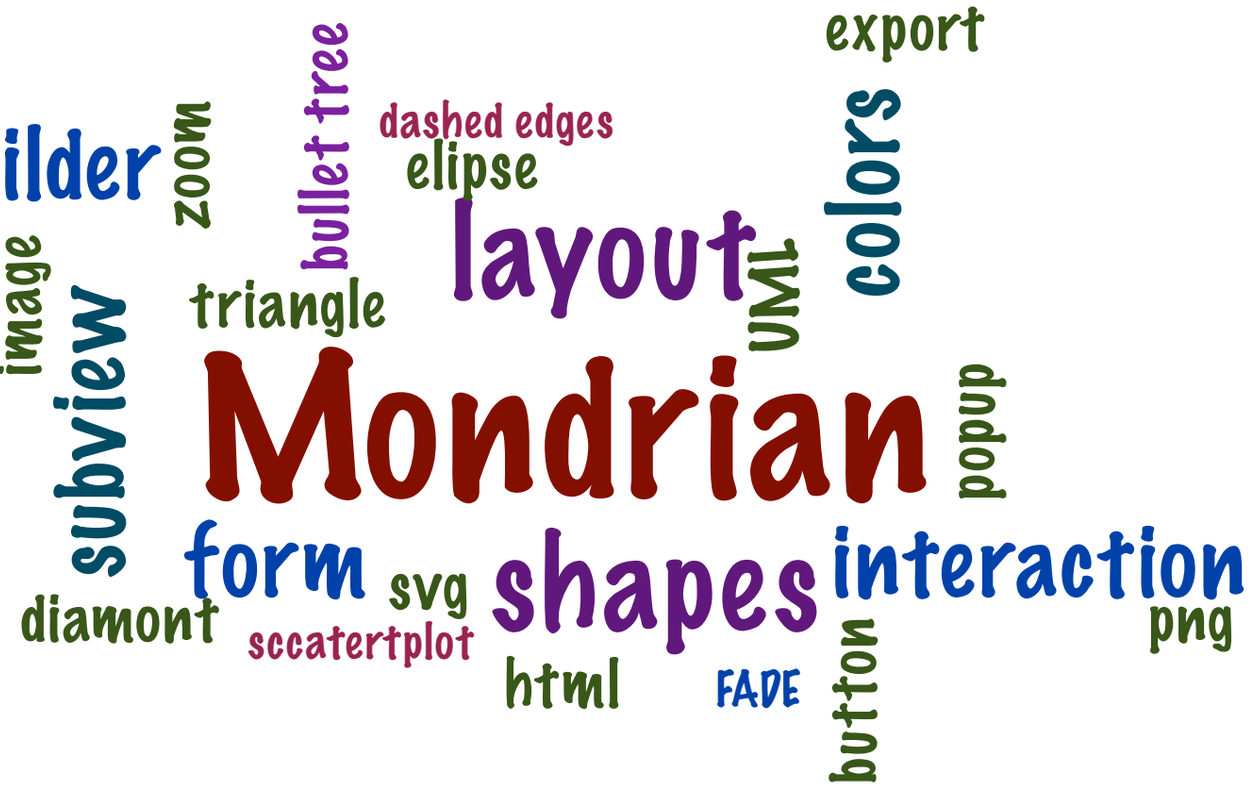
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Mondrian has new cool features

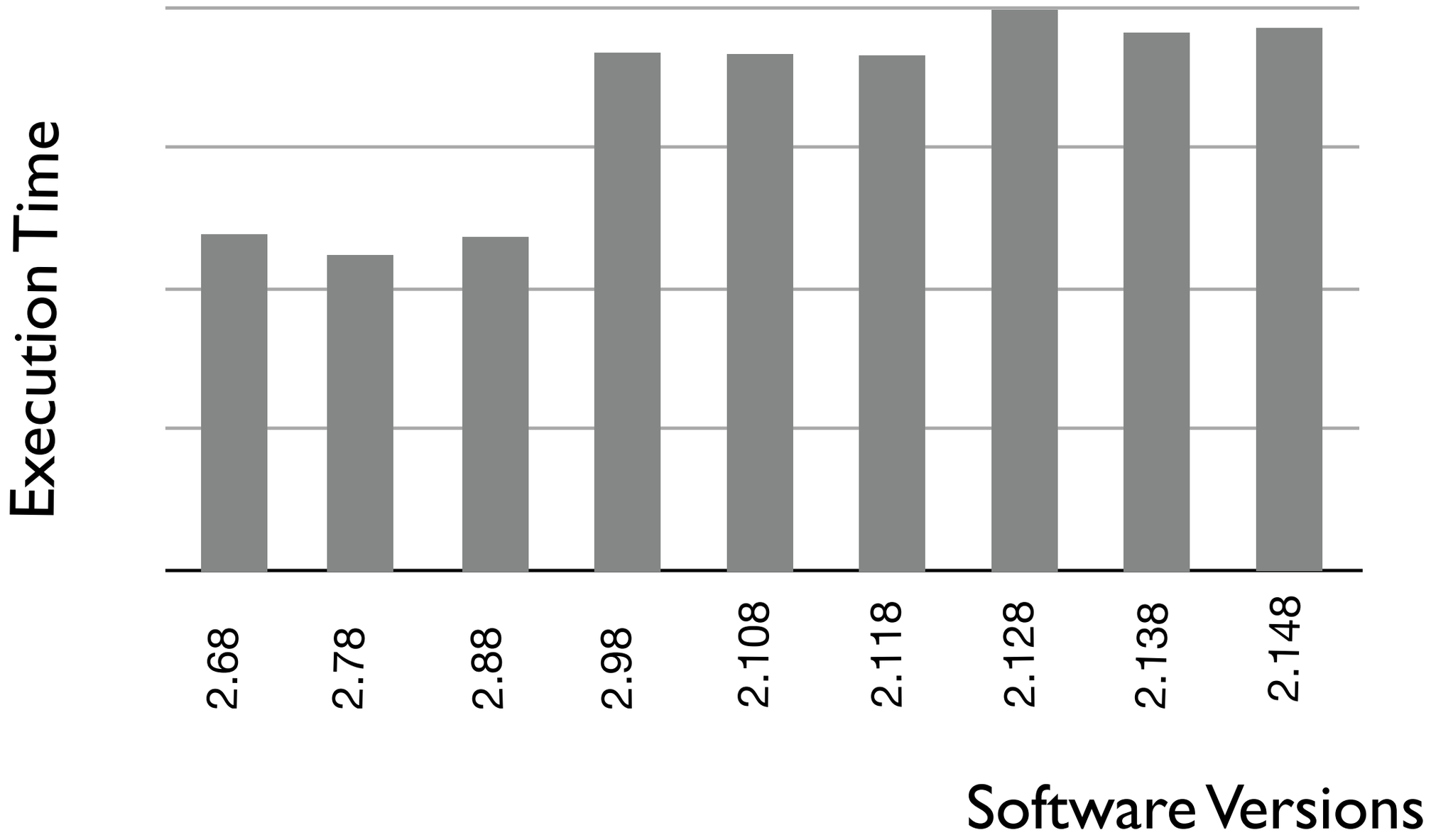
a Mondrian user, 2010

Mondrian has new cool features, but I feel it is now much slower than before

a Mondrian user, 2010

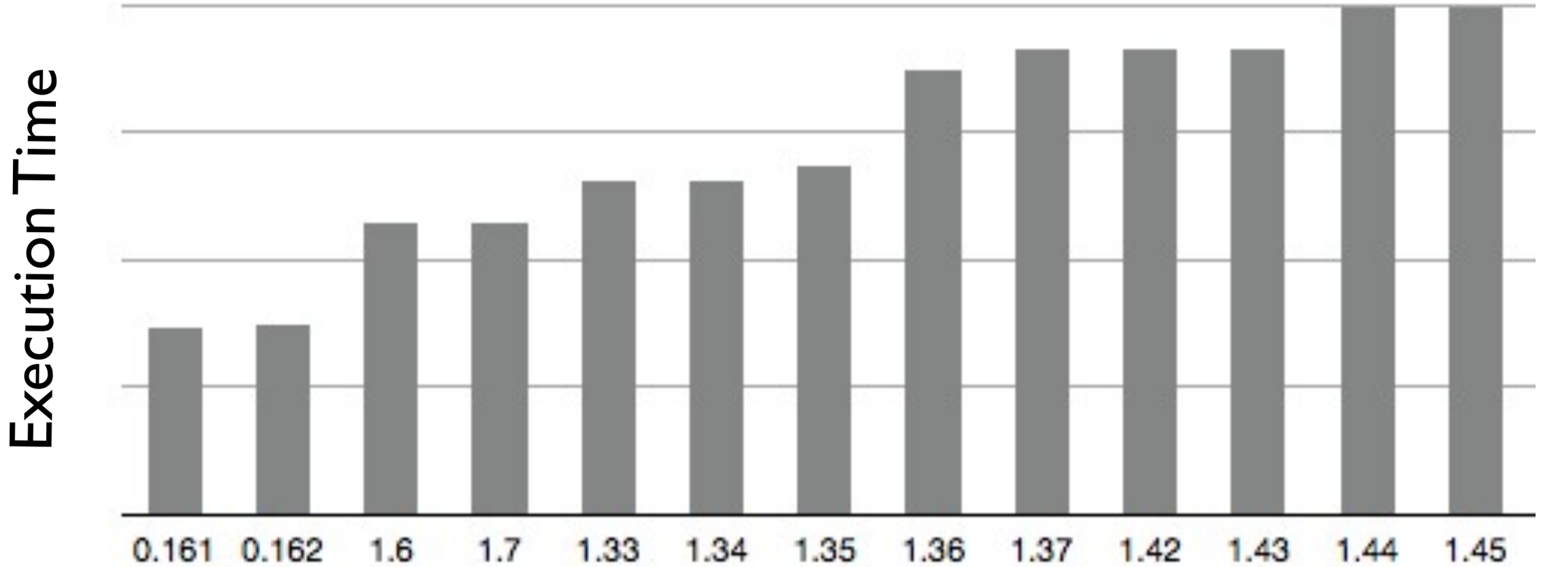
Performance Evolution

(Mondrian)



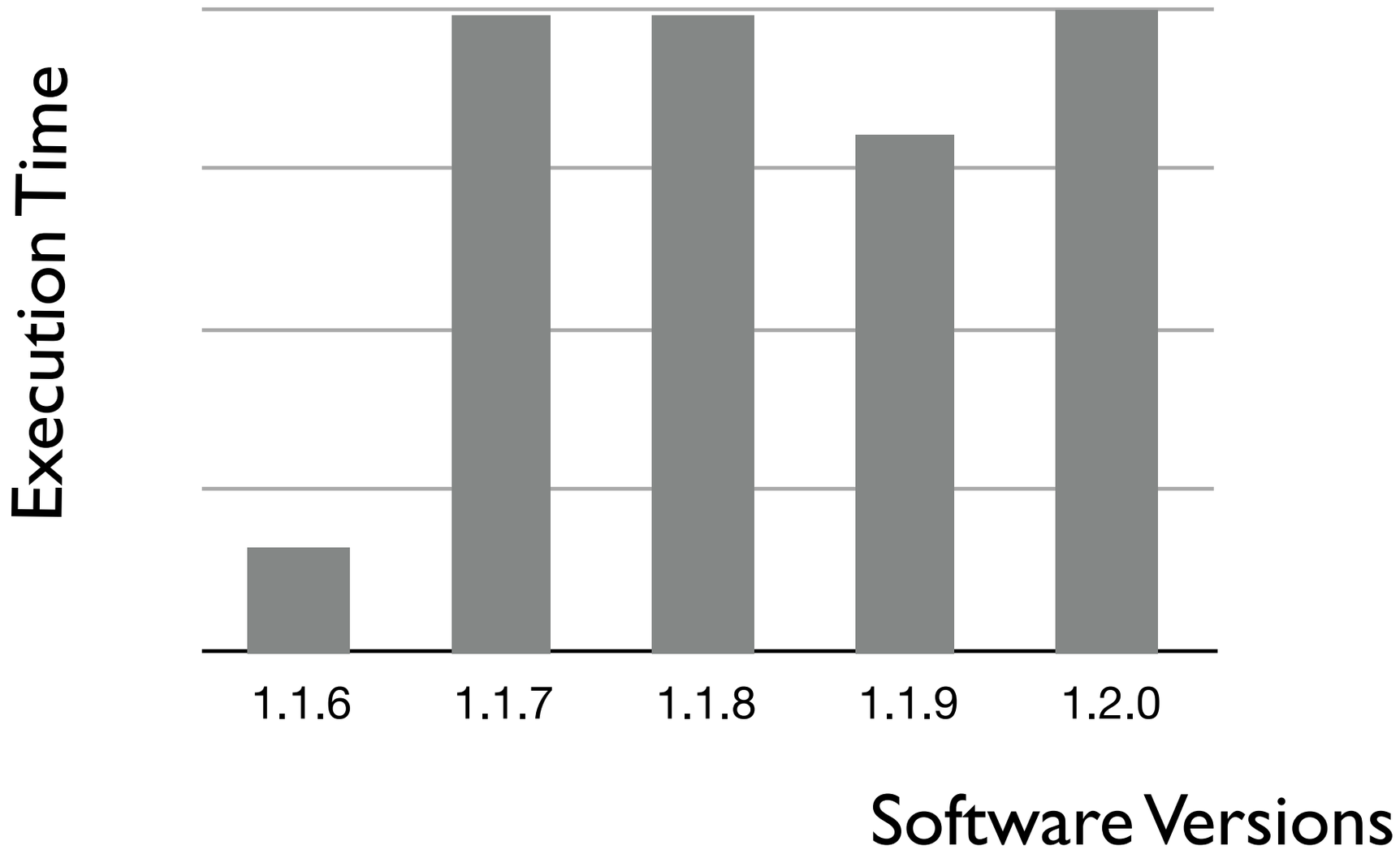
Performance Evolution

(Roassal)



Performance Evolution

(XMLSupport)



“Why is my software slower than it was two month ago?”

“Which are the software changes responsible for my performance loss?”

Tracking Down Software Changes Responsible for Performance Loss

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Roadmap

1. *Problem*: current abstractions are unfit
2. *Multidimensional Profiling*: tracking performance evolution
3. *Conclusion & Future Work*: studio for monitoring performance

Roadmap

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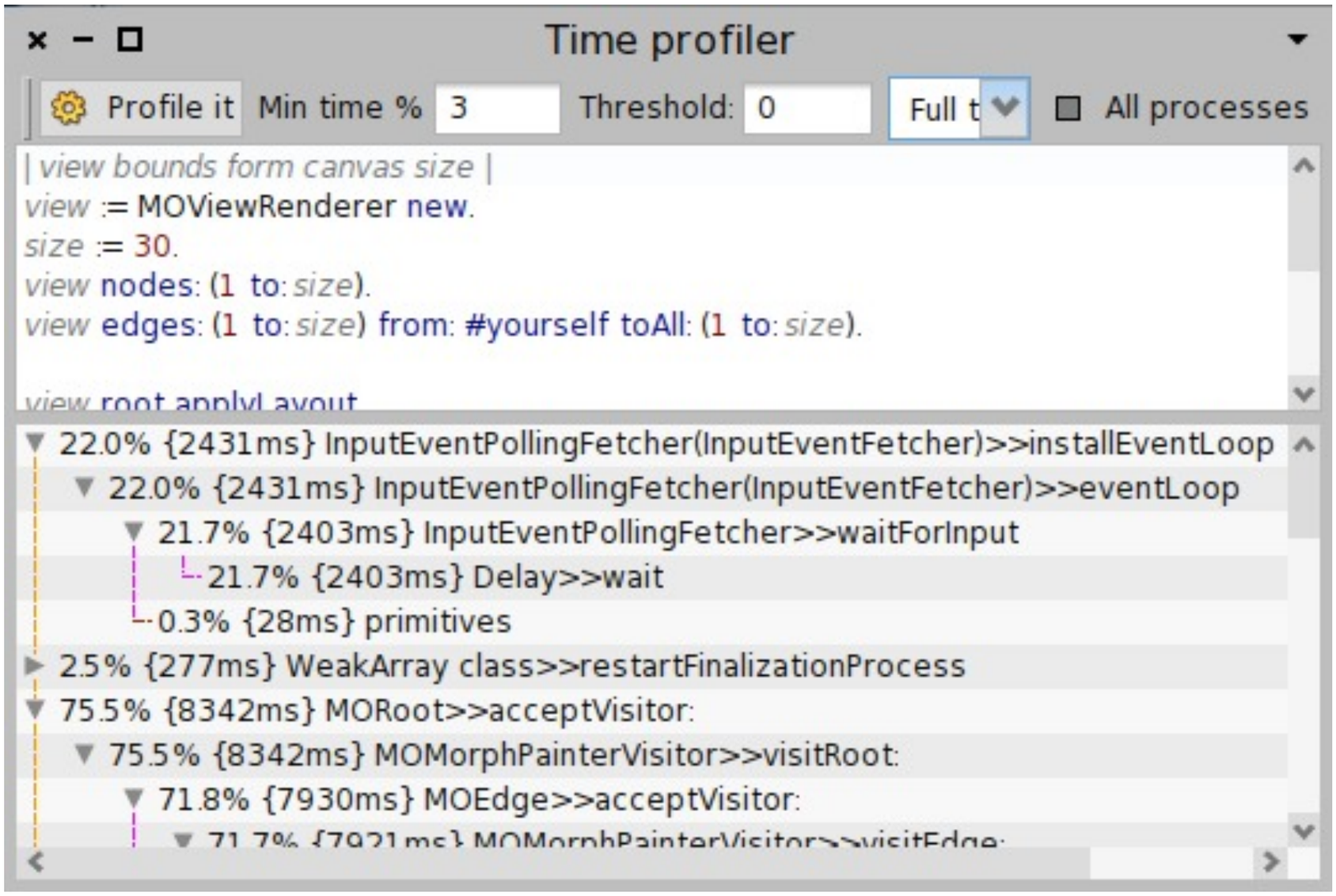
Profiling a benchmark

execution time:

11052 msec



changing versions

V 1.0

V 1.1

V 1.5

V 1.6

V 1.7

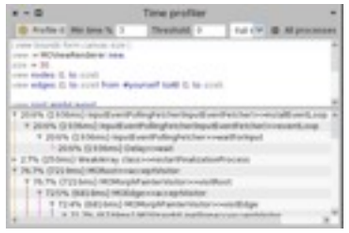
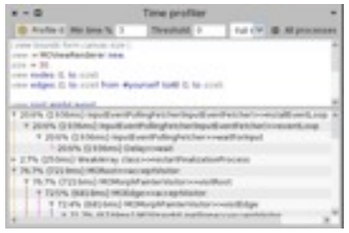
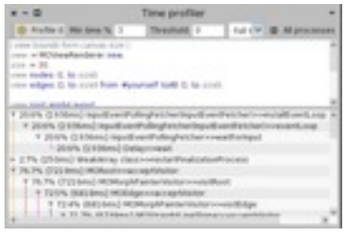
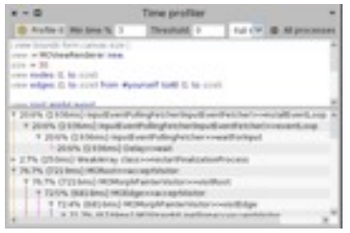
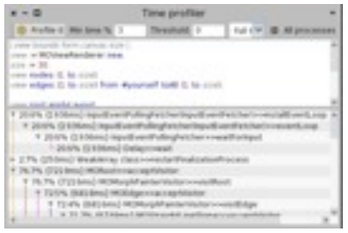
changing benchmark

B 1

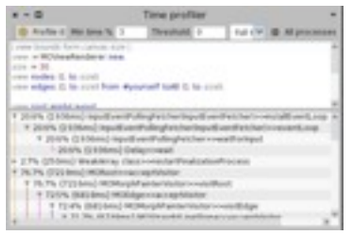
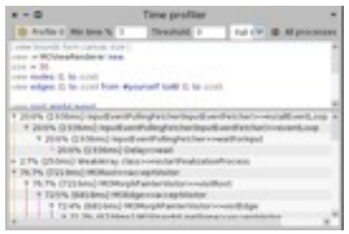
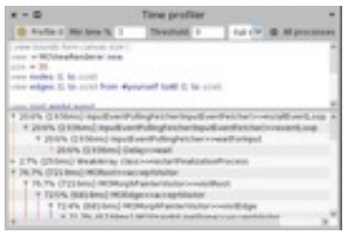
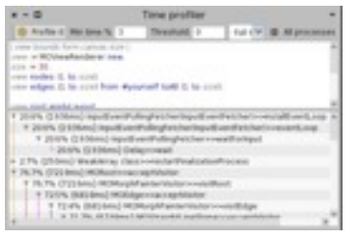
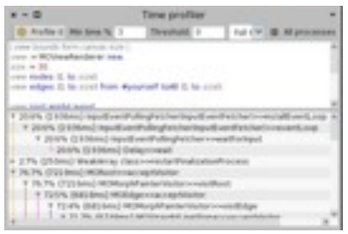
B 2

V 1.0 V 1.1 V 1.5 V 1.6 V 1.7

B 1

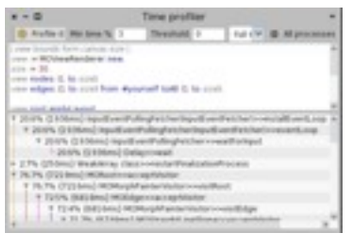






B 2

B 3




B 4





V 1.0 V 1.1 V 1.5 V 1.6 V 1.7

“Current profilers do not efficiently support performance comparison across multiple profiles”

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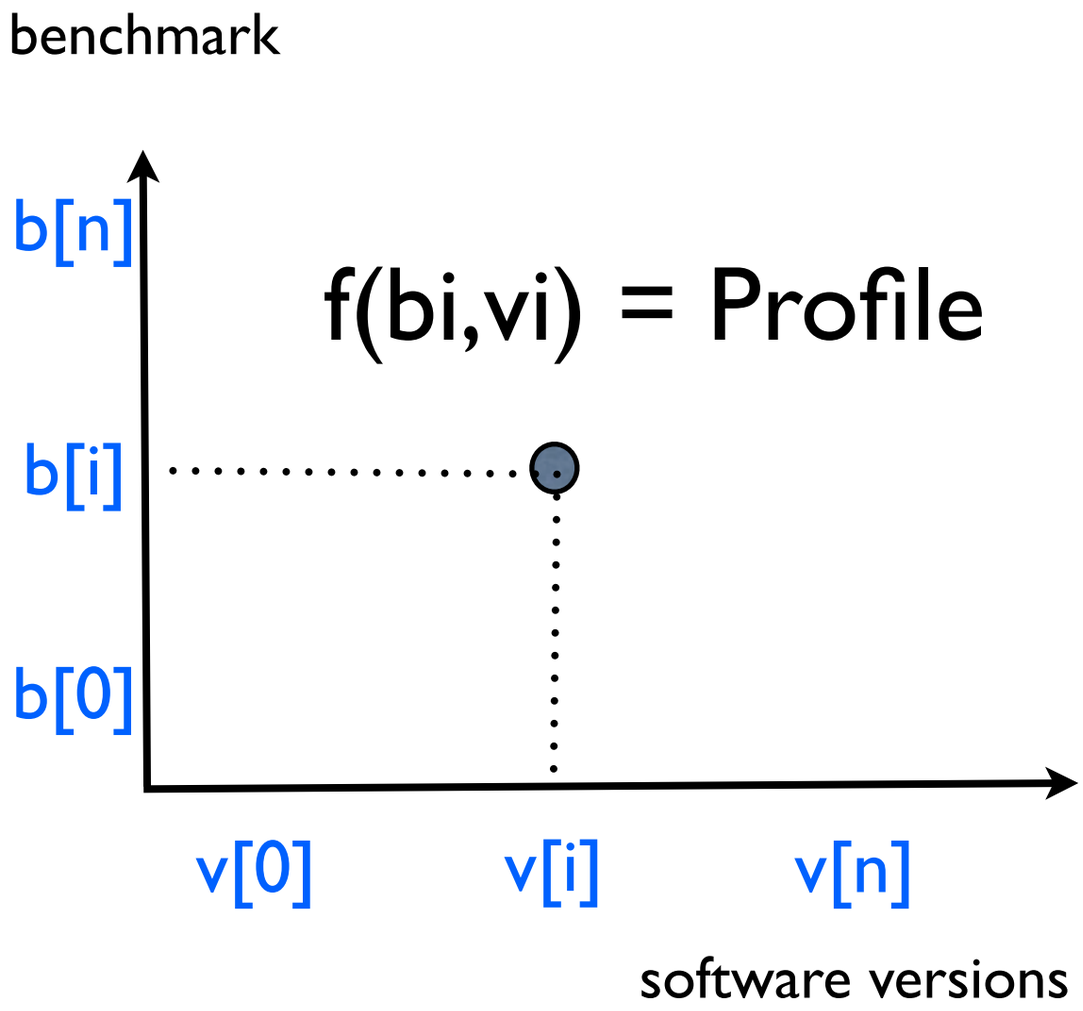
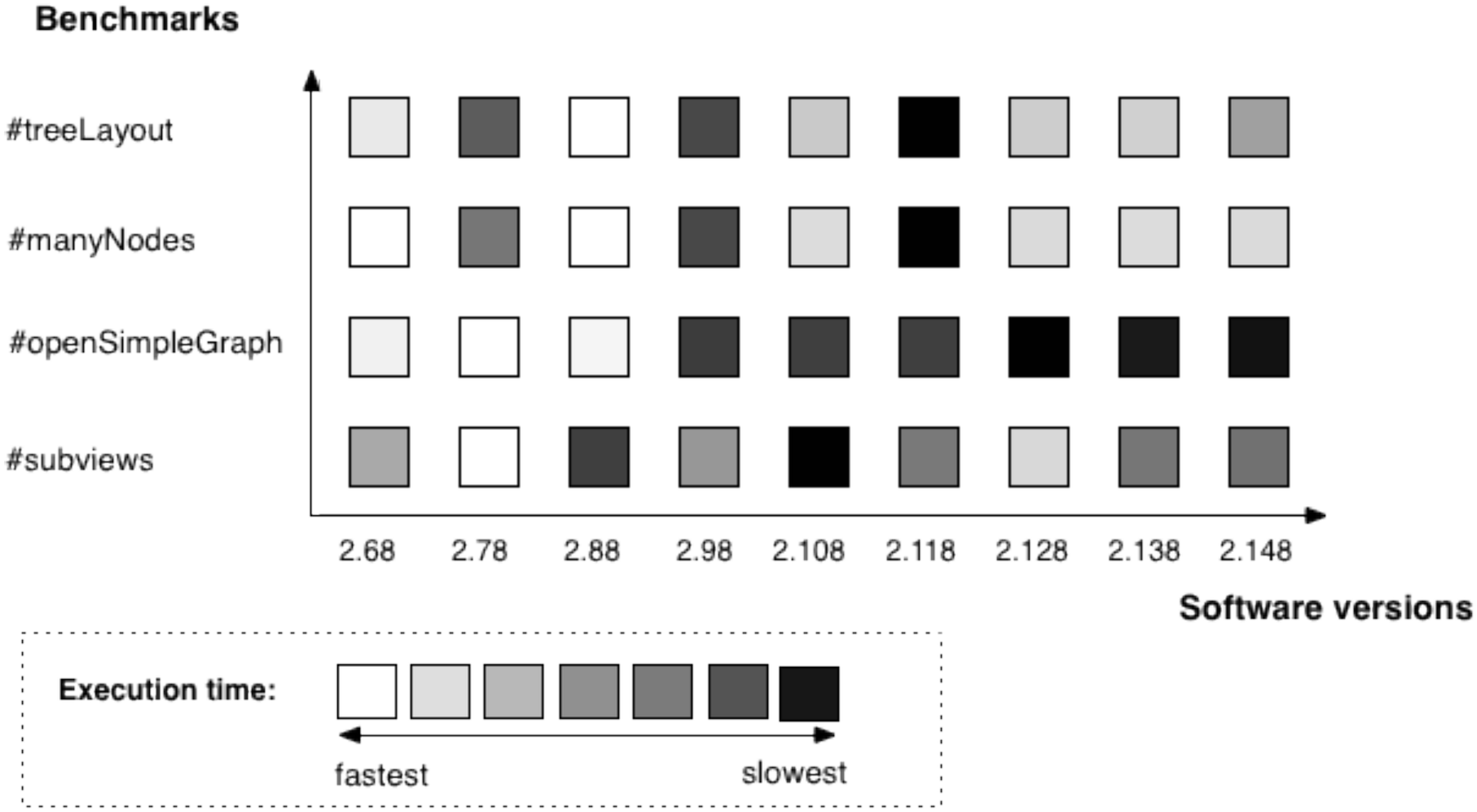
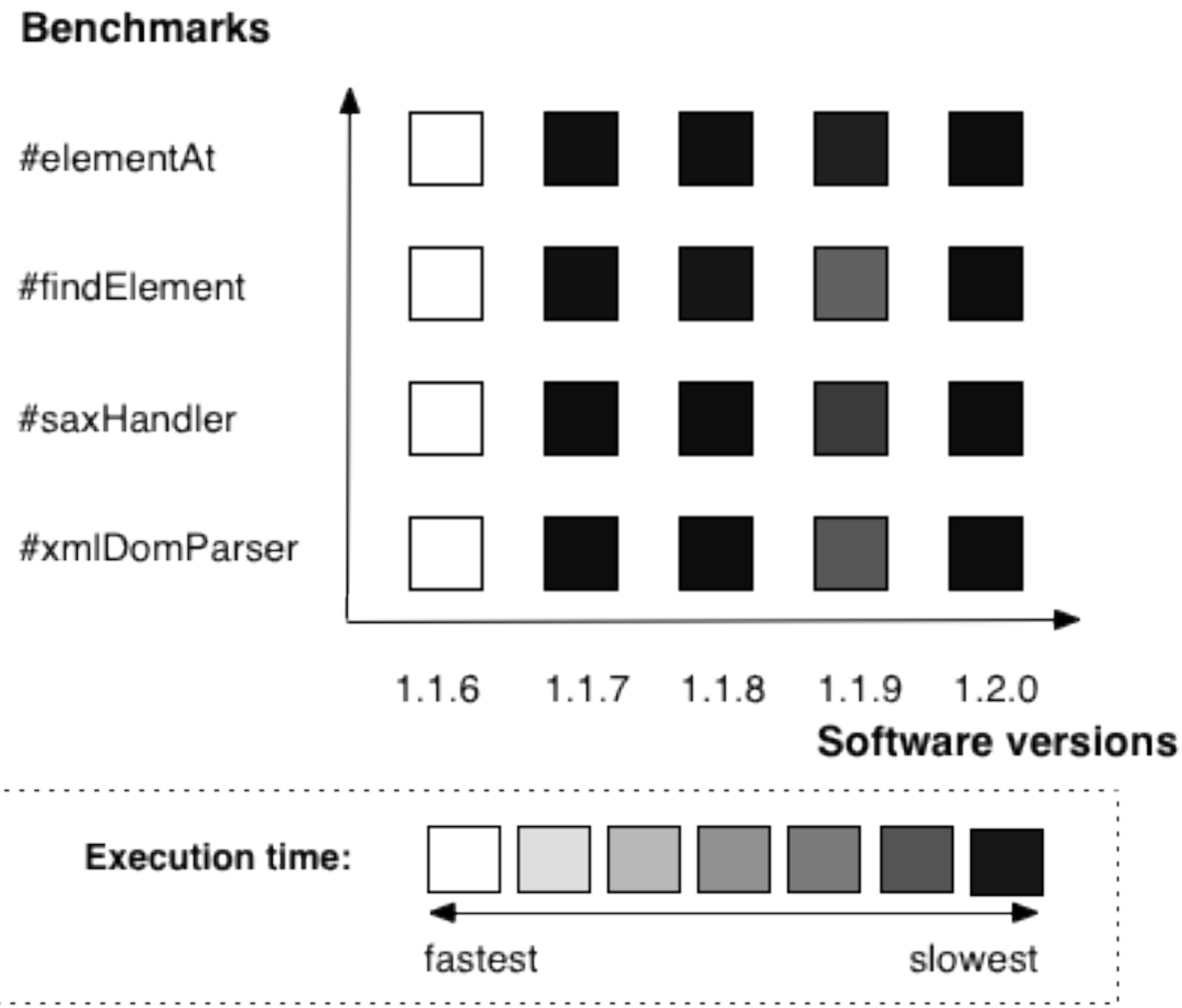
In a nutshell



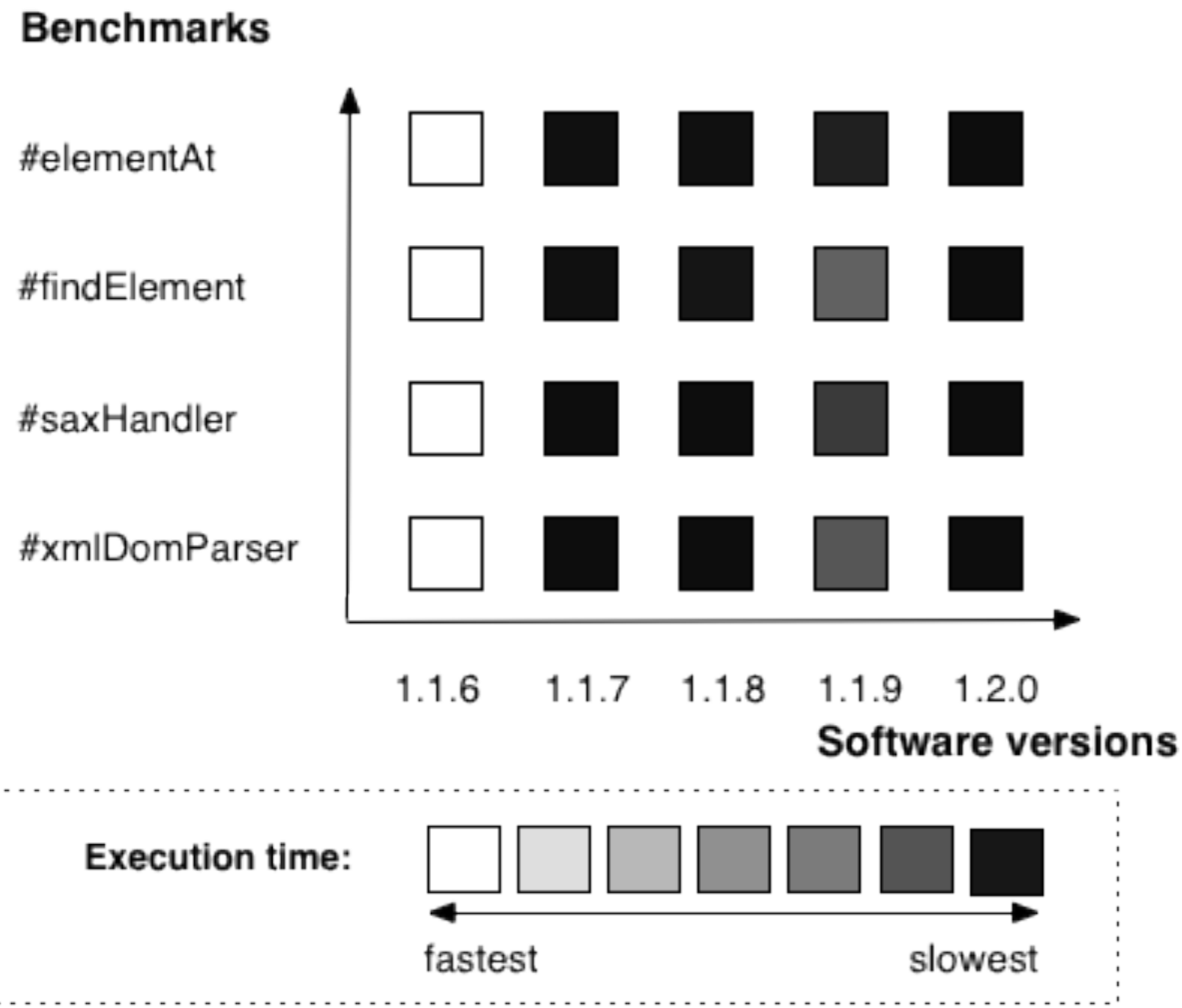
Performance Comparison Matrix (Mondrian)



Performance Comparison Matrix (XMLSupport)



Performance Comparison Matrix (XMLSupport)



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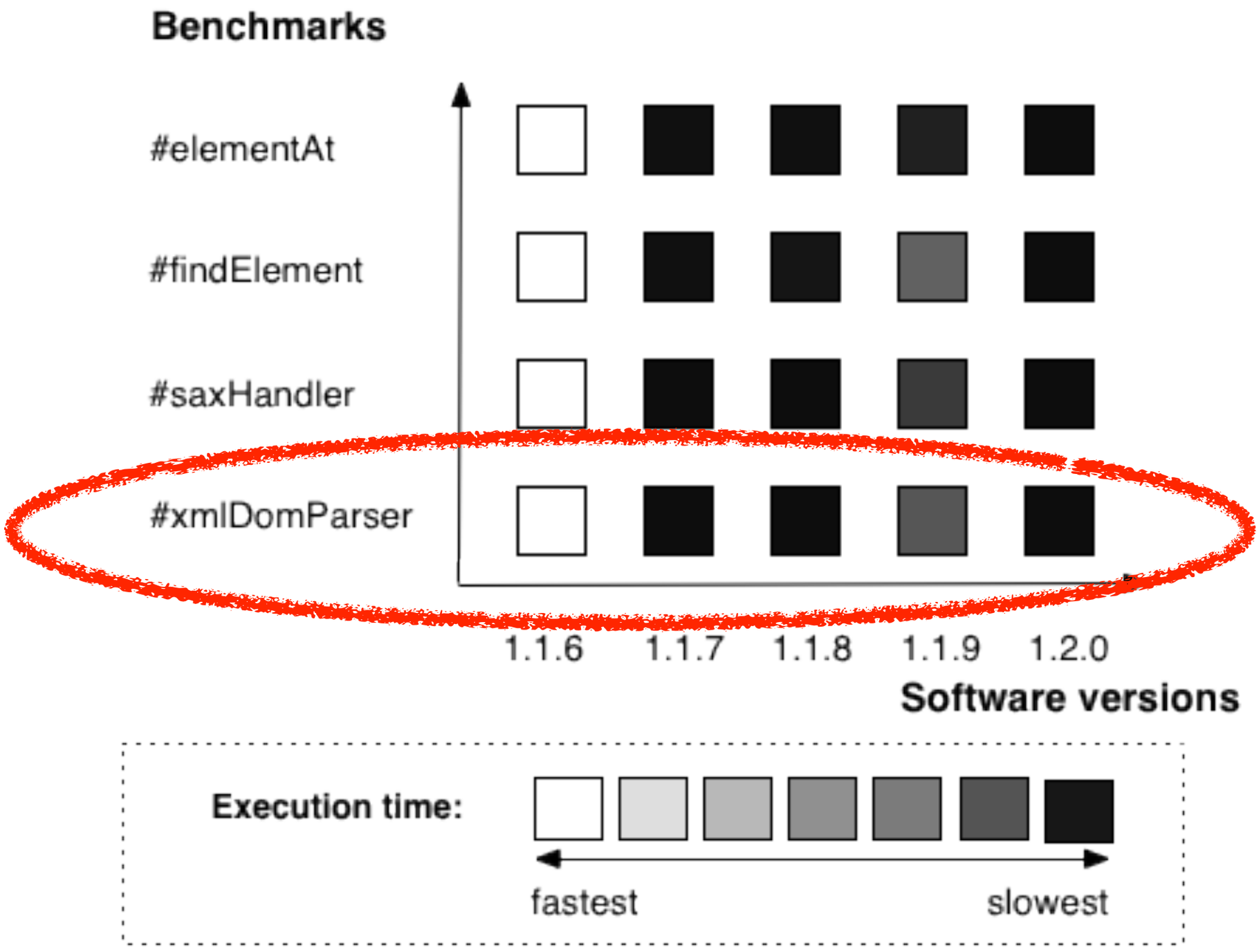
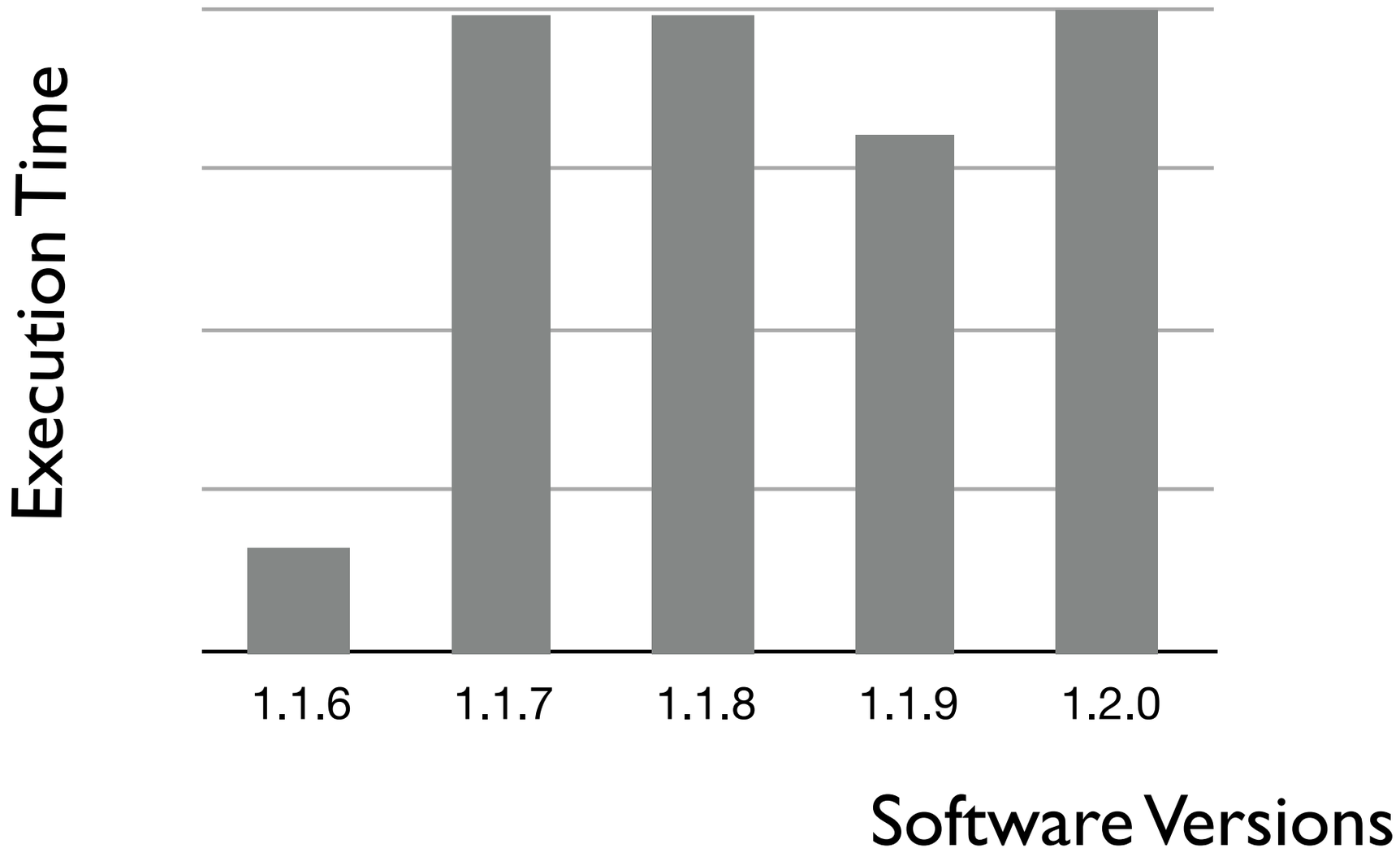


#xmlDomParser

(XMLSupport benchmark)



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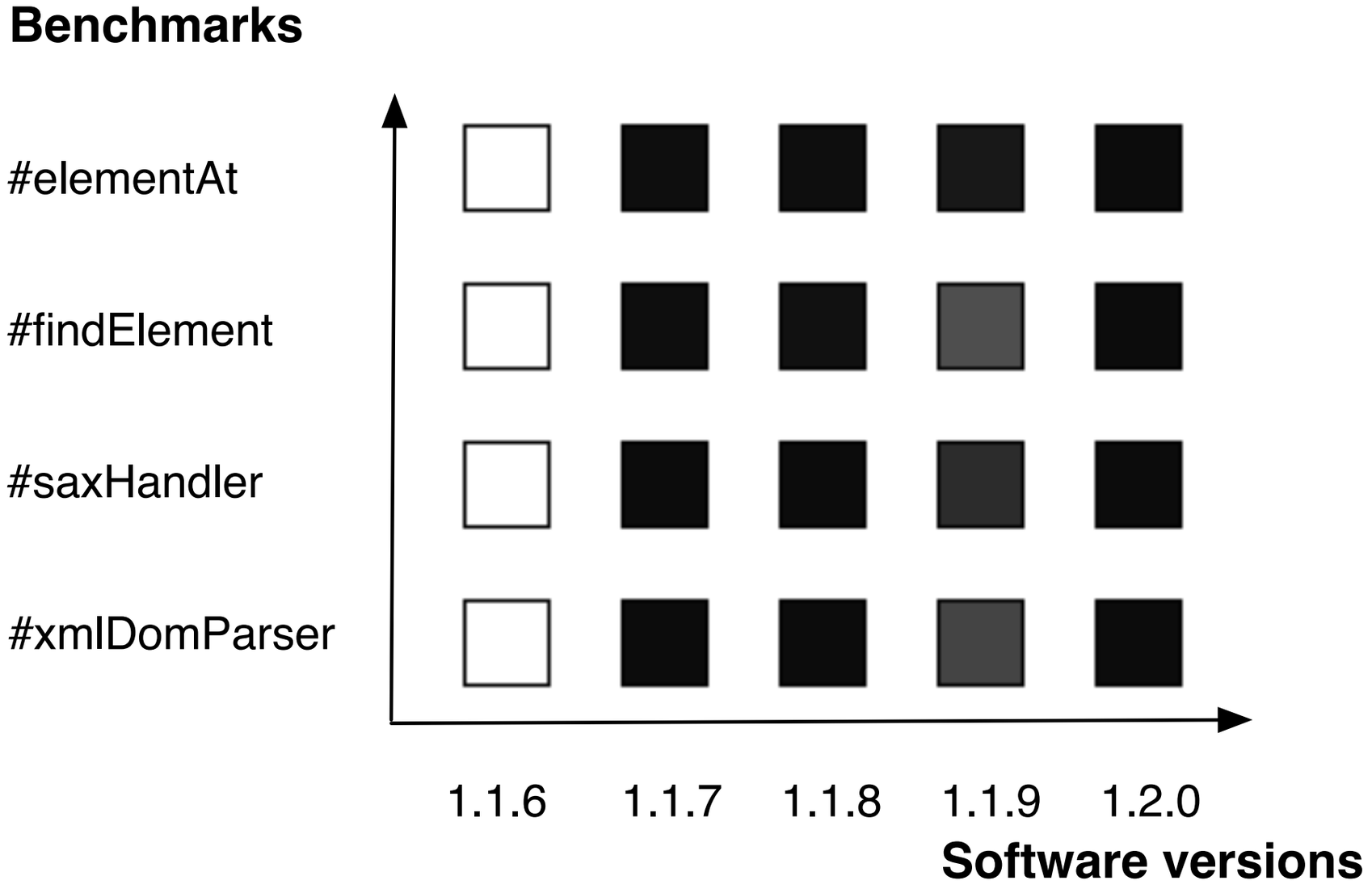

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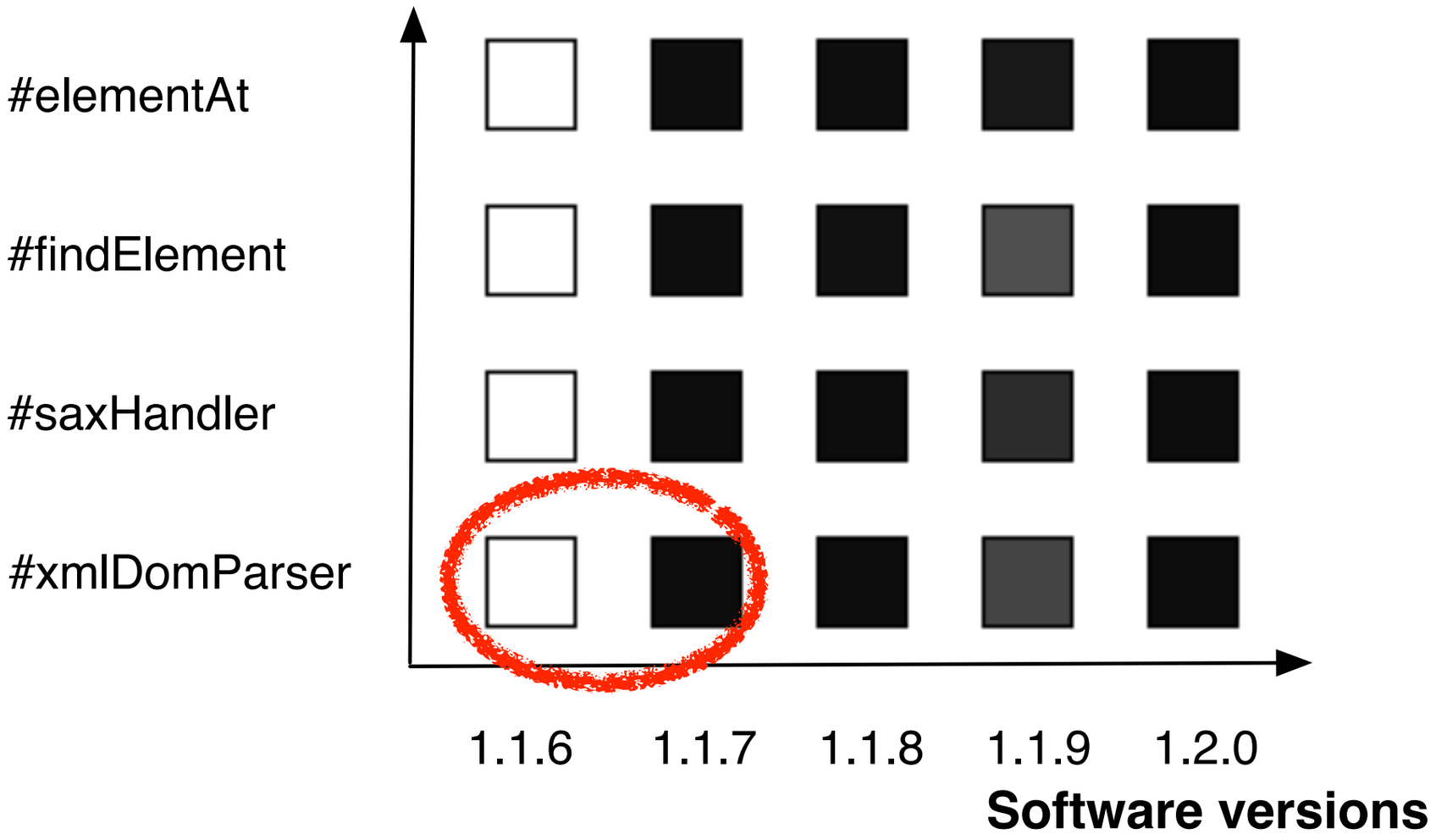
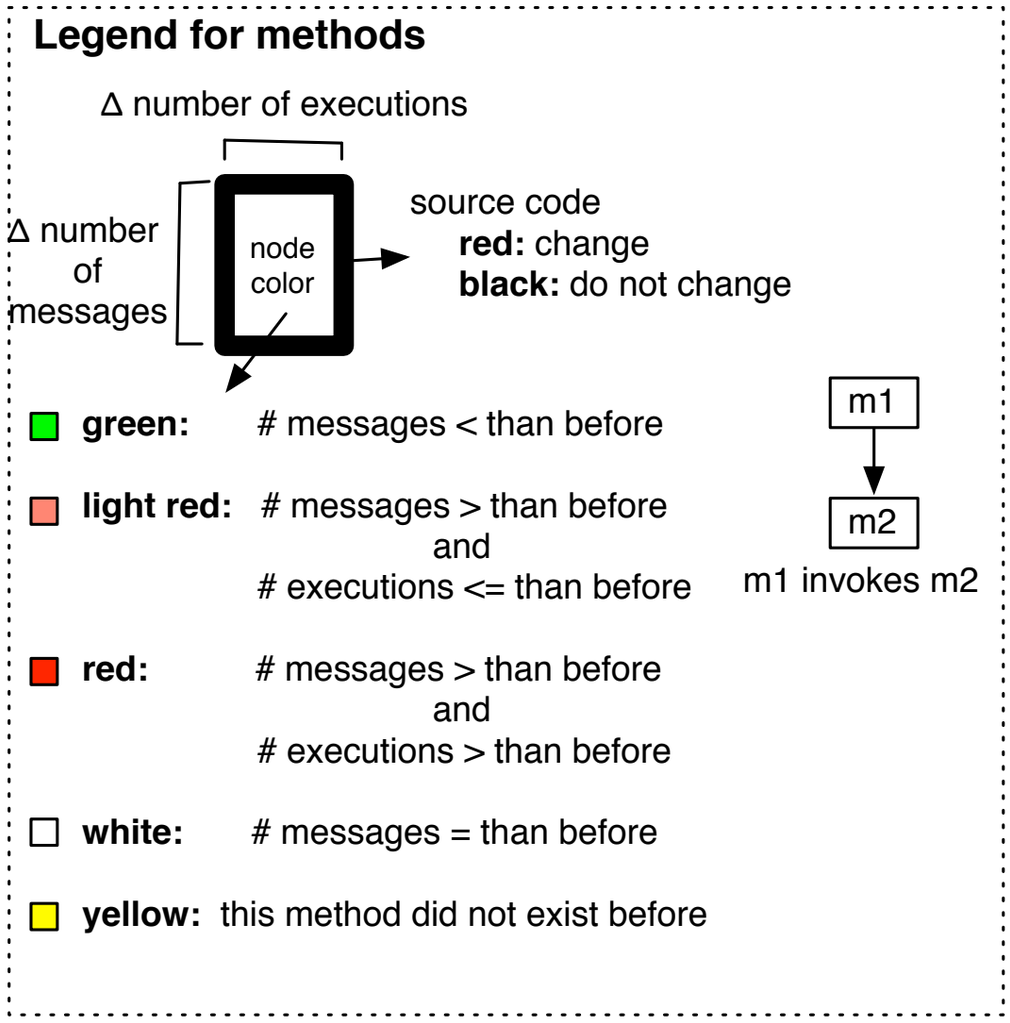
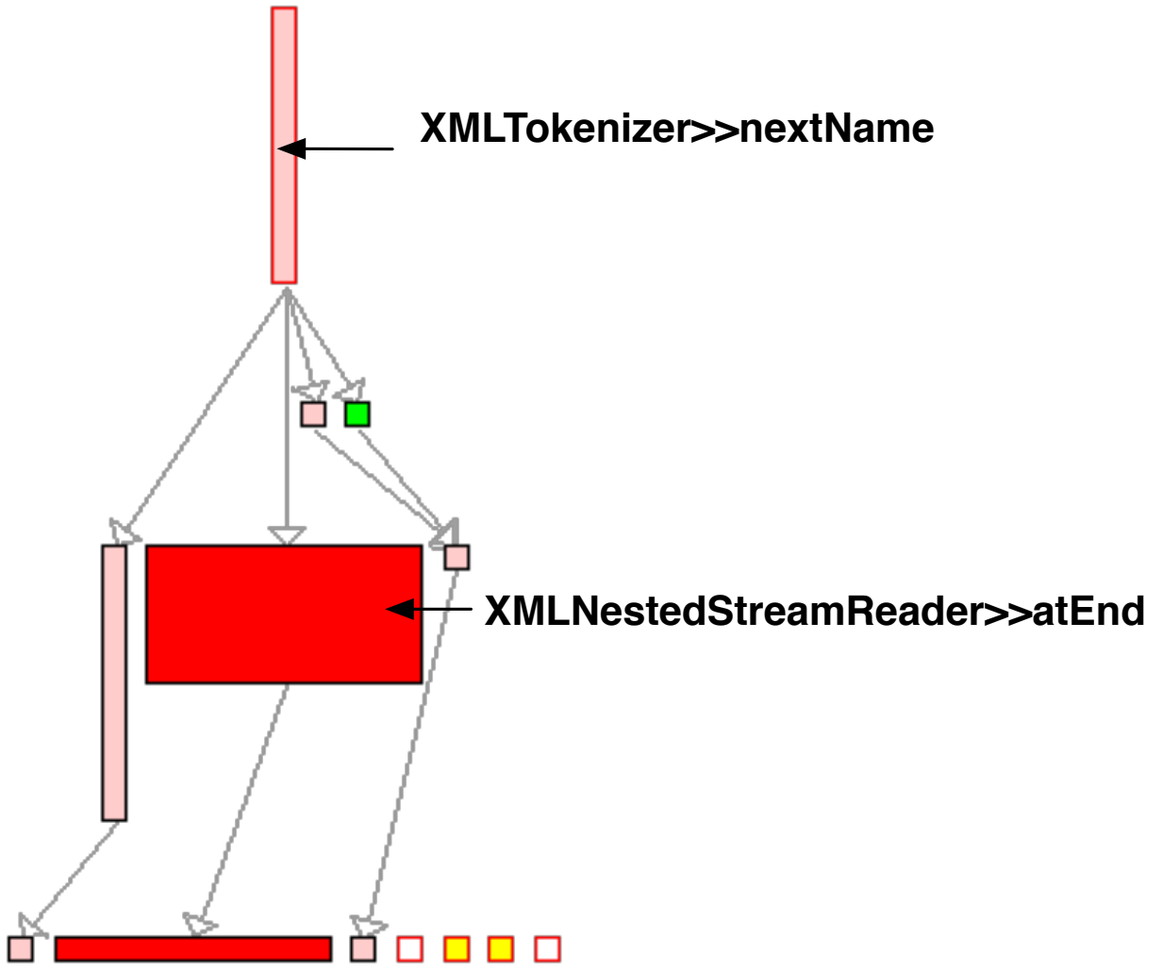


Performance Evolution Blueprint (XMLSupport)





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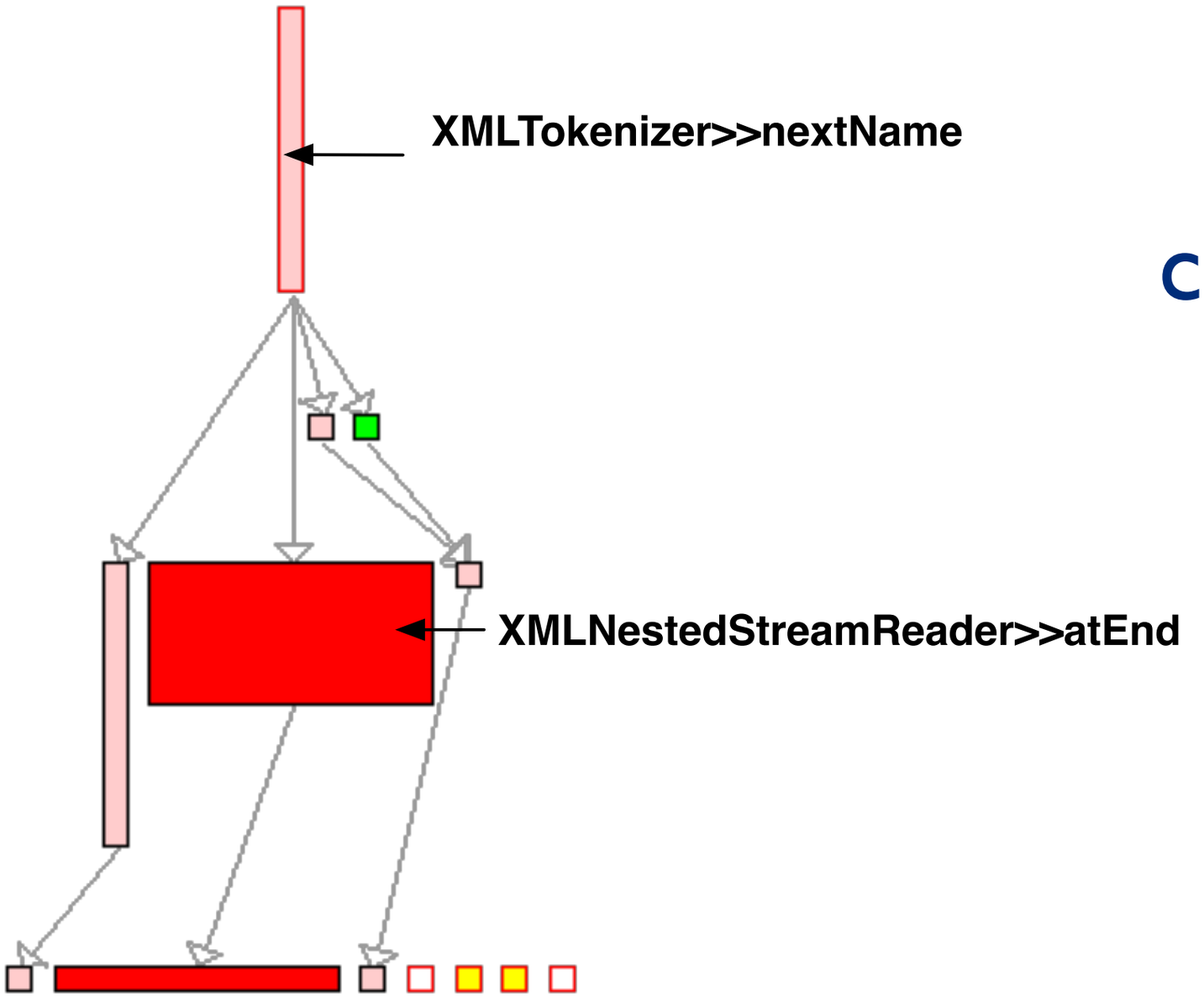

the impact of a changed method in the others methods

rcg

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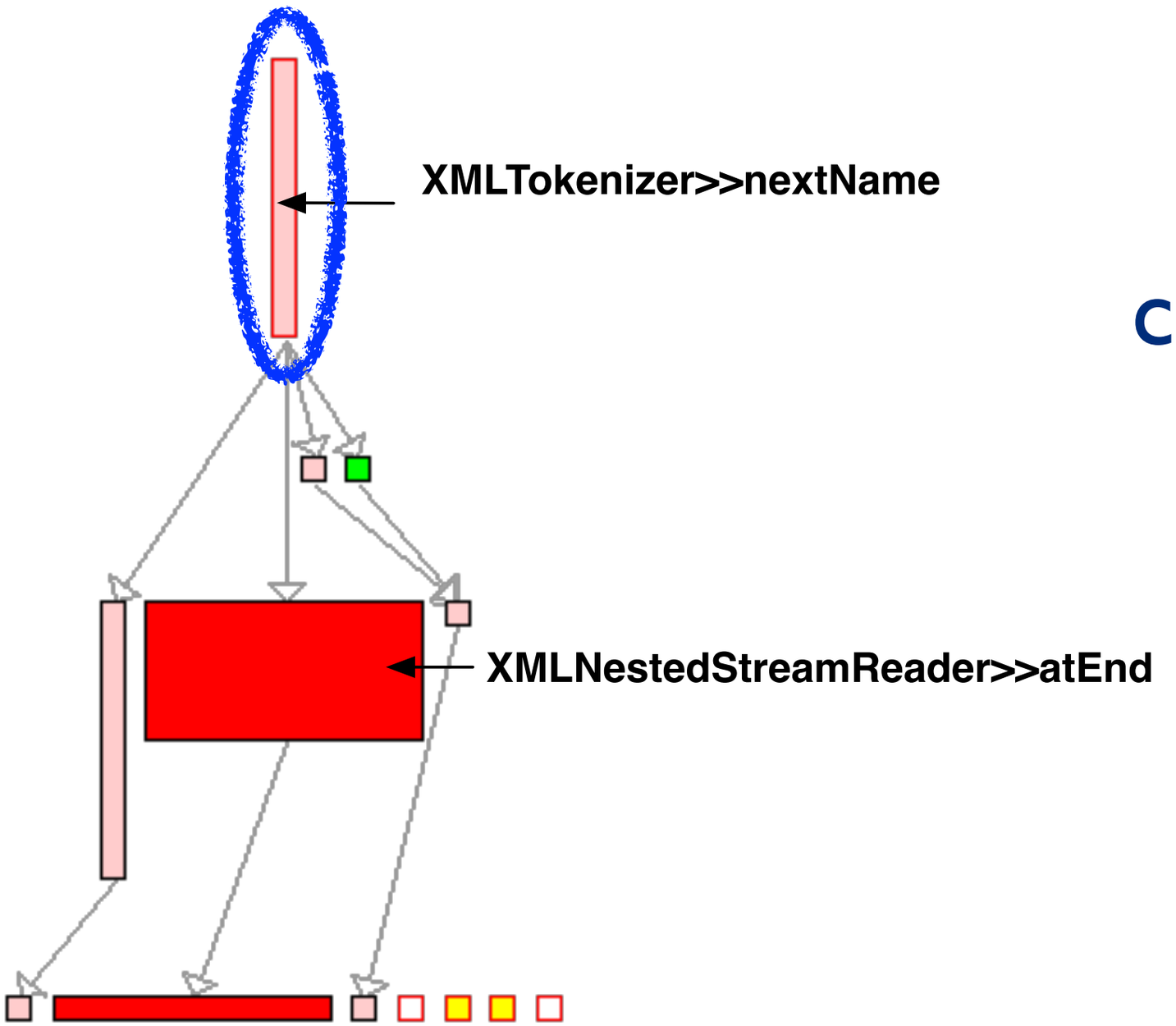

the impact of a changed method in the others methods

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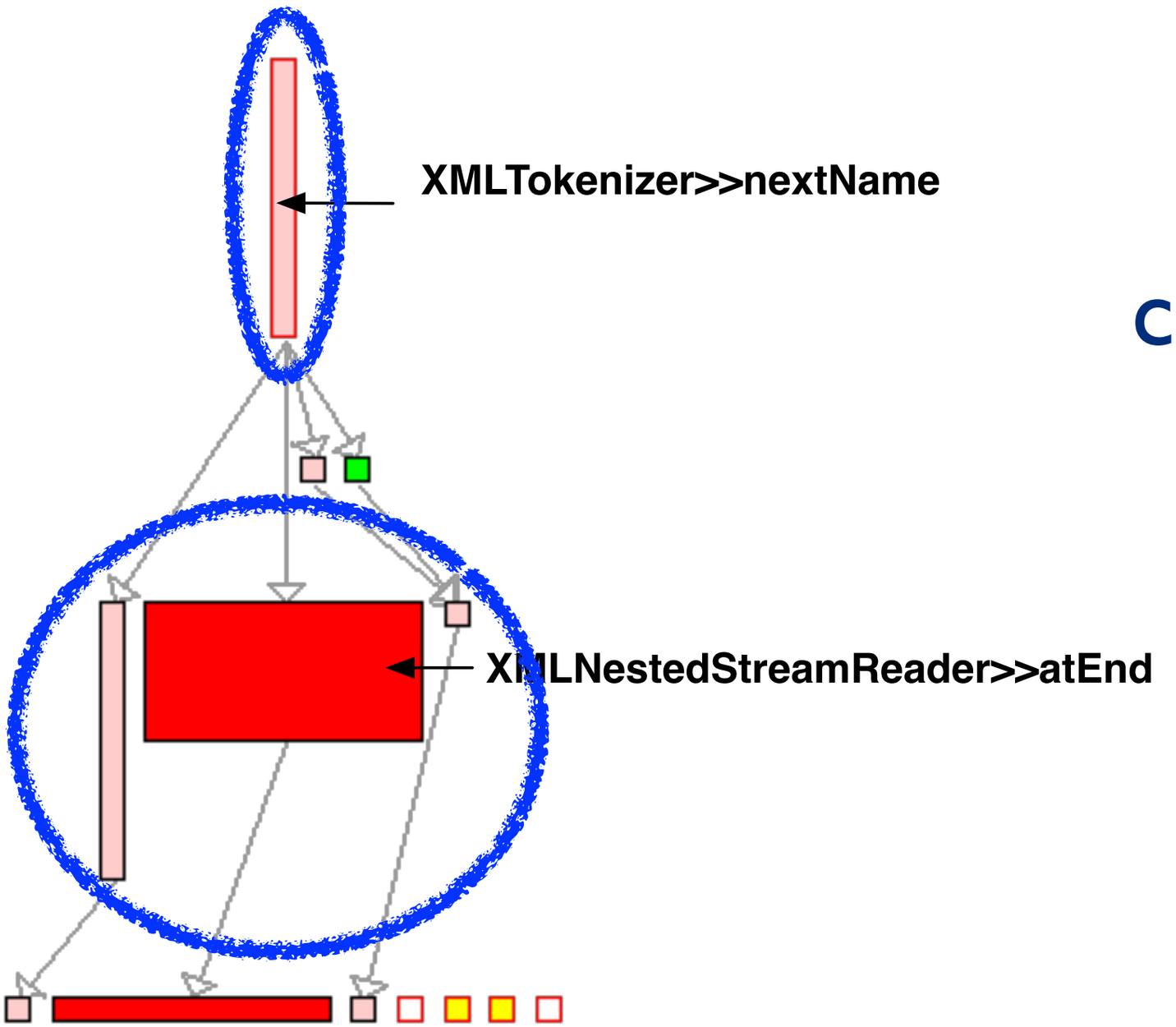

the impact of a changed method in the others methods

rcg

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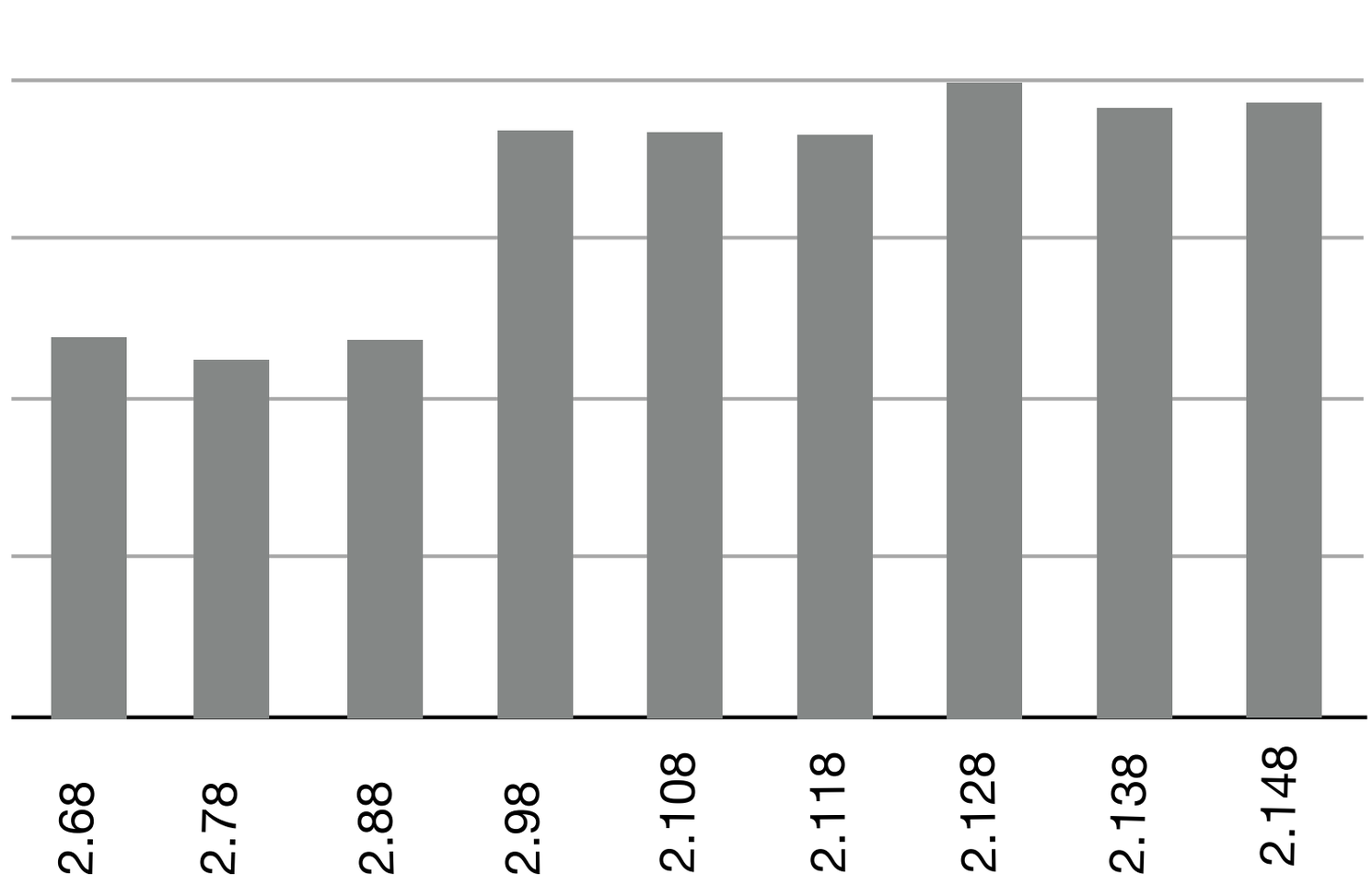
Conclusions

- Performance Evolution
- Multidimensional Profiling
- Future Work



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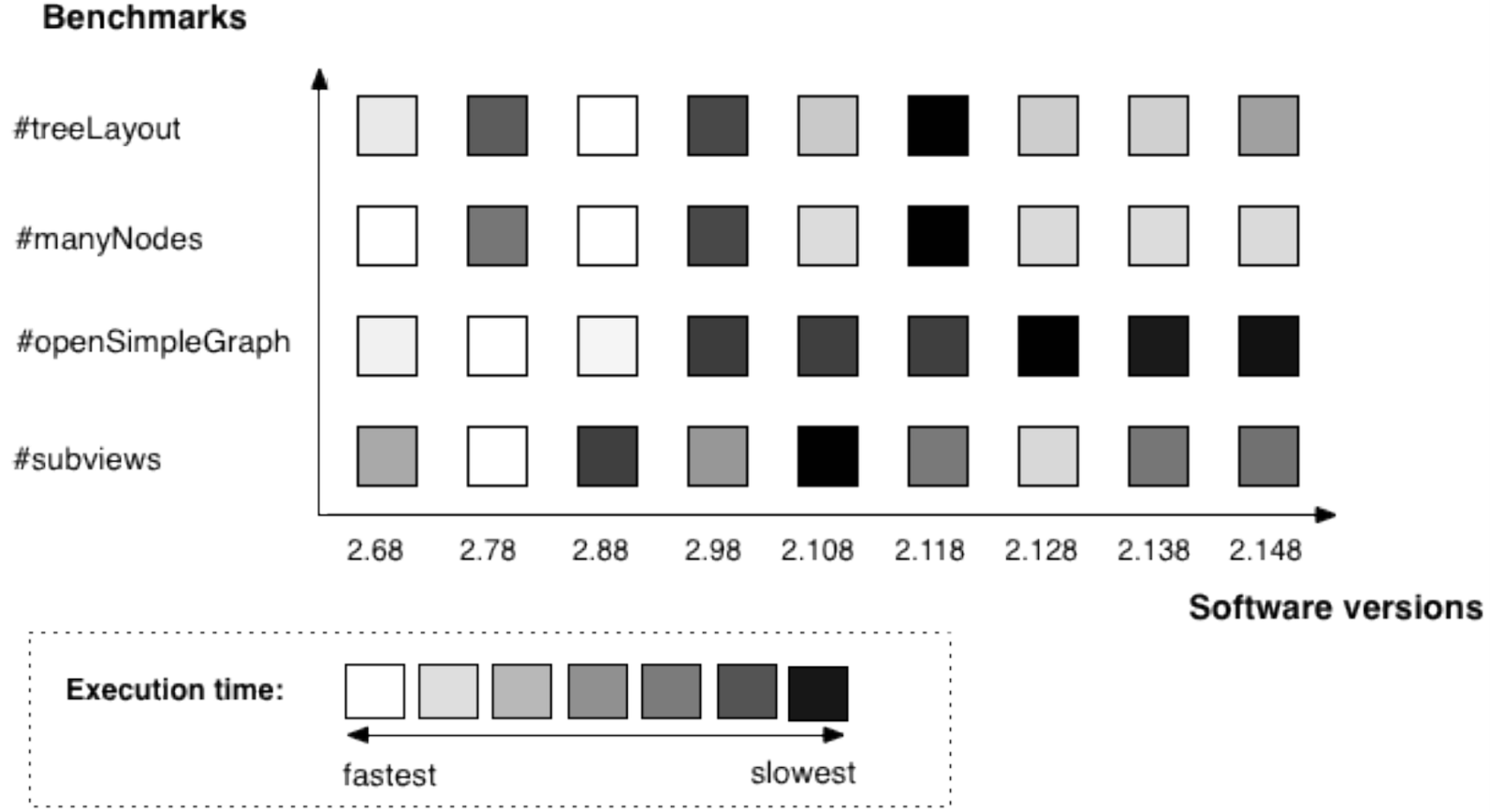

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