## Tracking Down Software Changes Responsible for Performance Loss

### Juan Pablo Sandoval & Alexandre Bergel Universidad de Chile

## Mondrian

### layout Mondrian shapes

## layout <sup>g</sup> Mondrian shapes

## builder form layout <sup>gg</sup> Mondrian shapes interaction





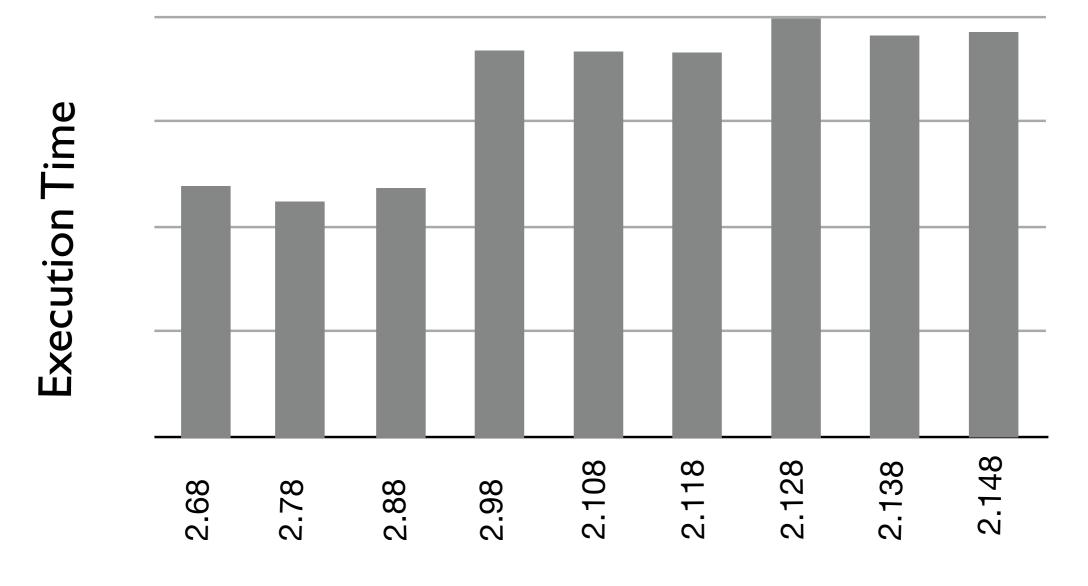
### Mondrian has new cool features

### a Mondrian user, 2010

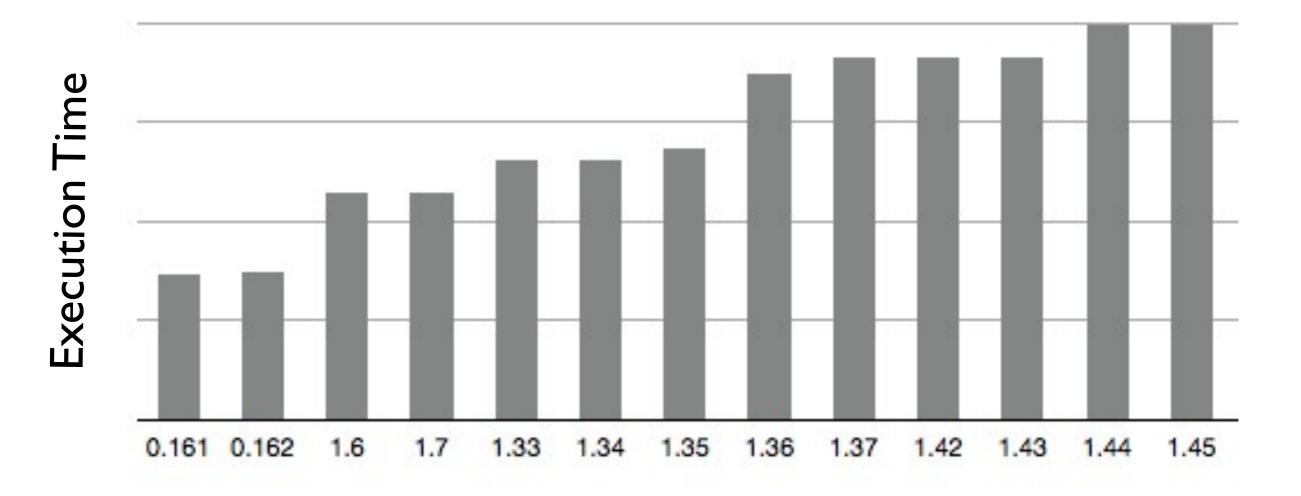
# Mondrian has new cool features, but I feel it is now much slower than before

### a Mondrian user, 2010

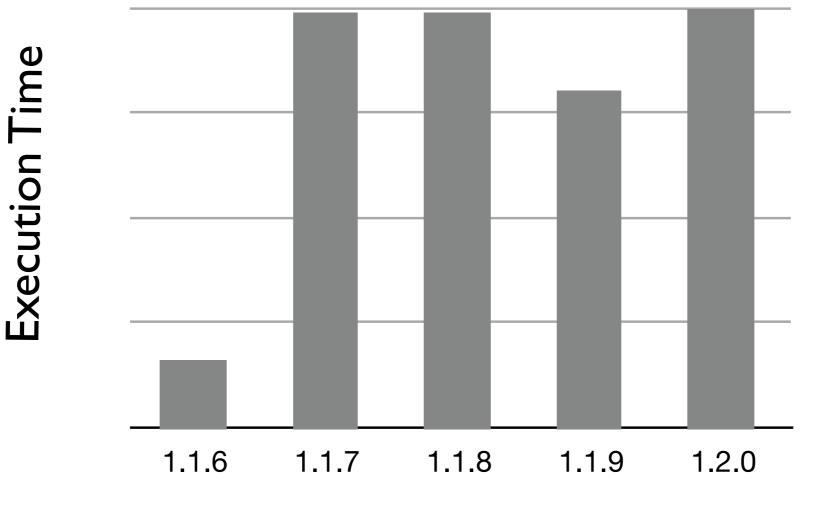
## Performance Evolution (Mondrian)



## 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

### Juan Pablo Sandoval & Alexandre Bergel University of Chile

# Roadmap

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

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## Profiling a benchmark

#### Time profiler × - 🗆 🍪 Profile it Min time % 3 Threshold: 0 All processes Full t view bounds form canvas size | view := MOViewRenderer new. size = 30. view nodes: (1 to: size). view edges: (1 to: size) from: #yourself toAll: (1 to: size). view root applyl avout 22.0% {2431ms} InputEventPollingFetcher(InputEventFetcher)>>installEventLoop 22.0% {2431ms} InputEventPollingFetcher(InputEventFetcher)>>eventLoop 21.7% {2403ms} InputEventPollingFetcher>>waitForInput -21.7% {2403ms} Delay>>wait -0.3% {28ms} primitives 2.5% {277ms} WeakArray class>>restartFinalizationProcess 75.5% {8342ms} MORoot>>acceptVisitor: 75.5% {8342ms} MOMorphPainterVisitor>>visitRoot: 71.8% {7930ms} MOEdge>>acceptVisitor: T1 7% {7021 mc} MOMorphPainterVicitor>>vicitEdae

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## changing benchmark

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\* 204% (3106-- 204% (31

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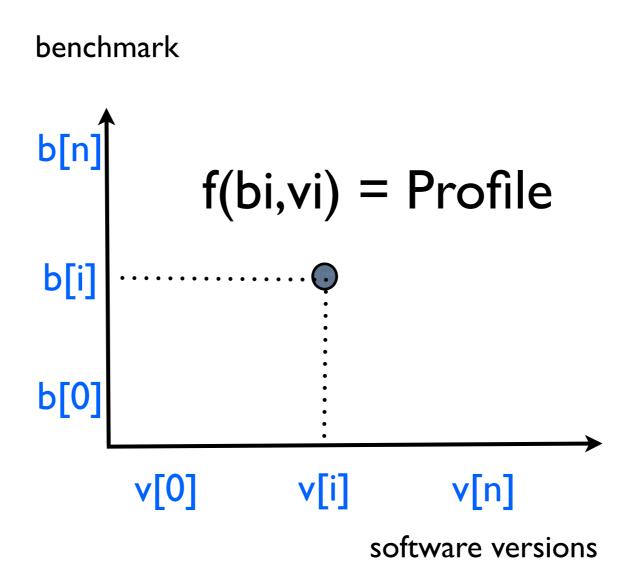


"Current profilers do not efficiently support performance comparison across multiple profiles"

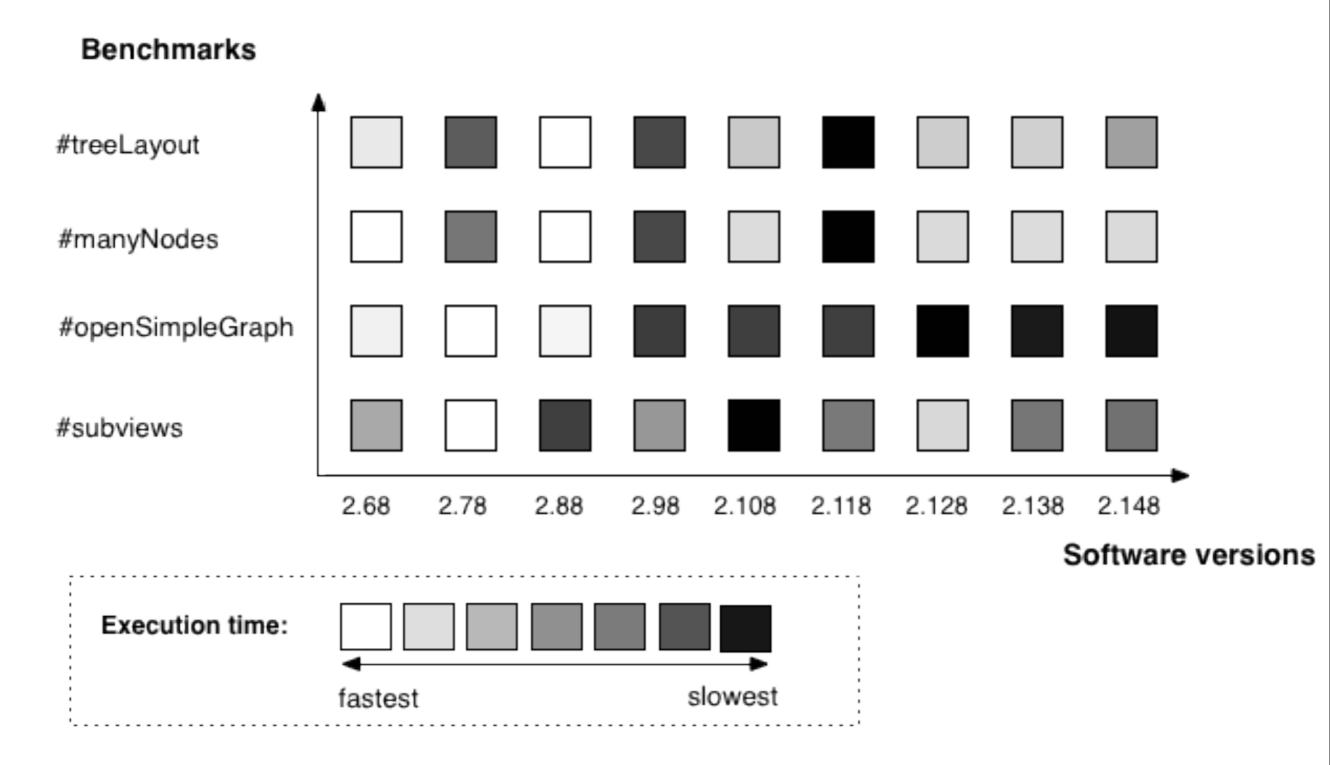
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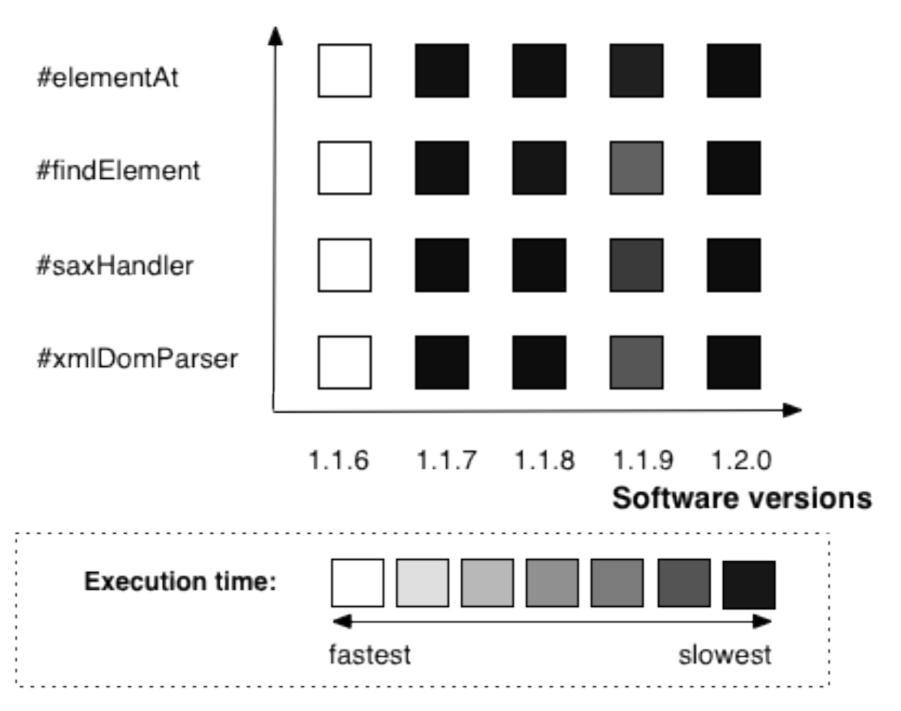
## In a nutshell



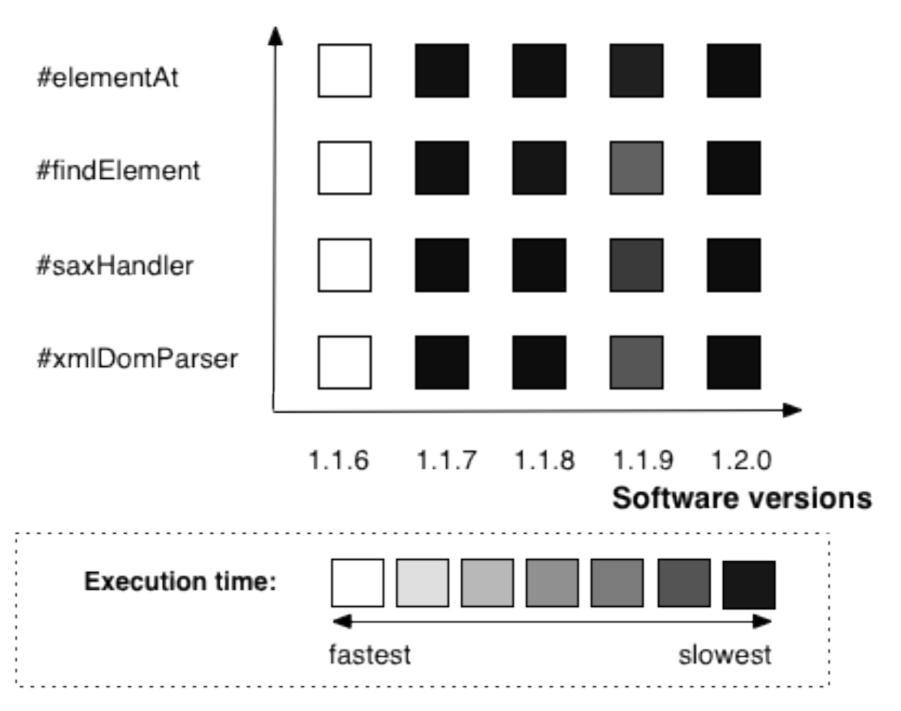
### Performance Comparison Matrix (Mondrian)



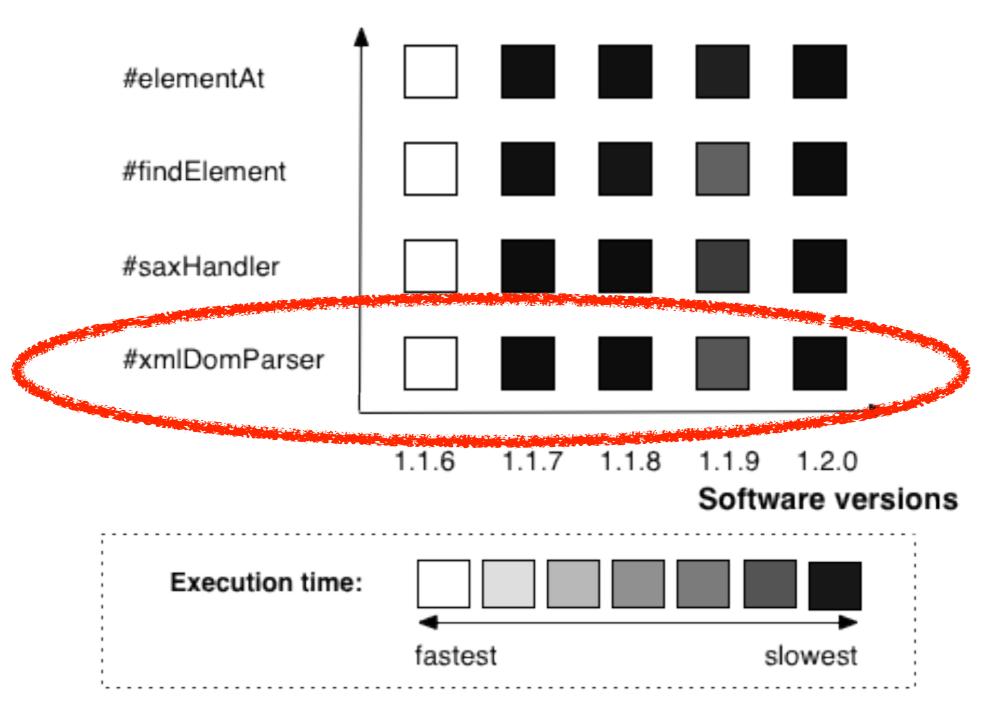
### Benchmarks



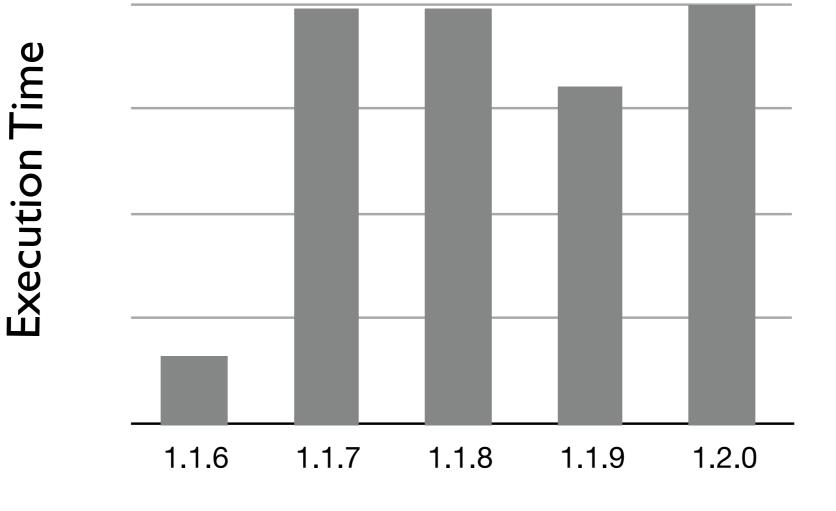
### Benchmarks



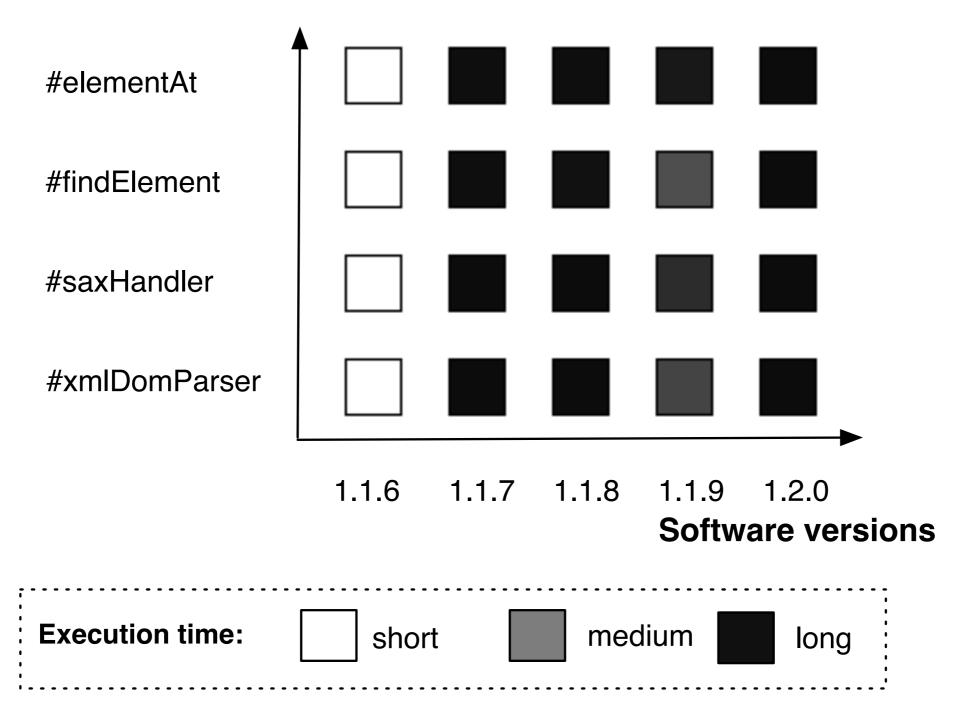
Benchmarks



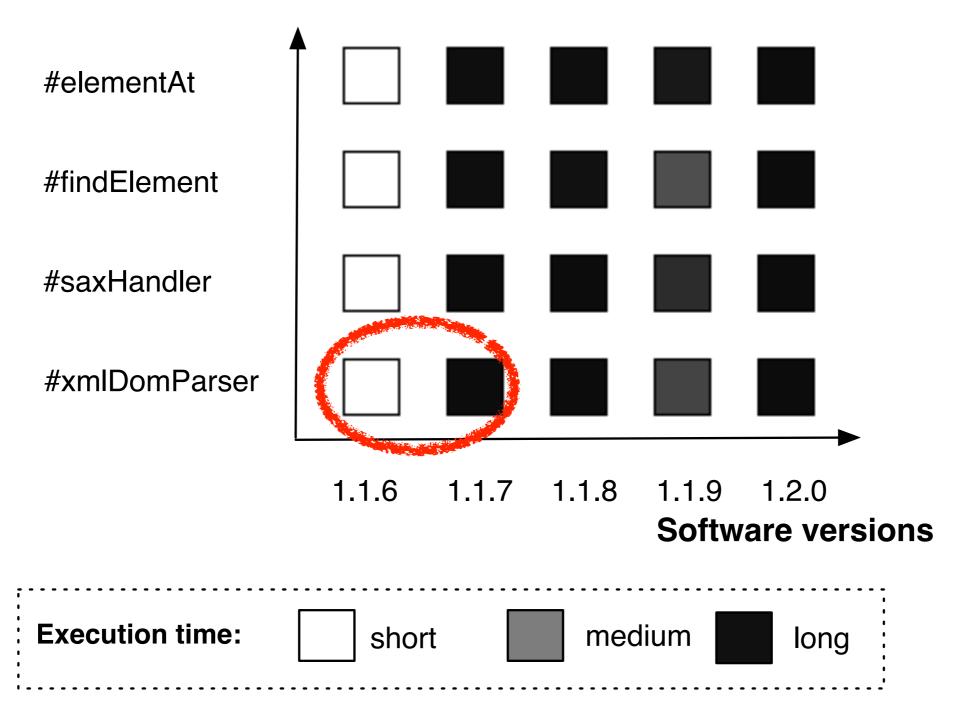
## #xmlDomParser (XMLSupport benchmark)

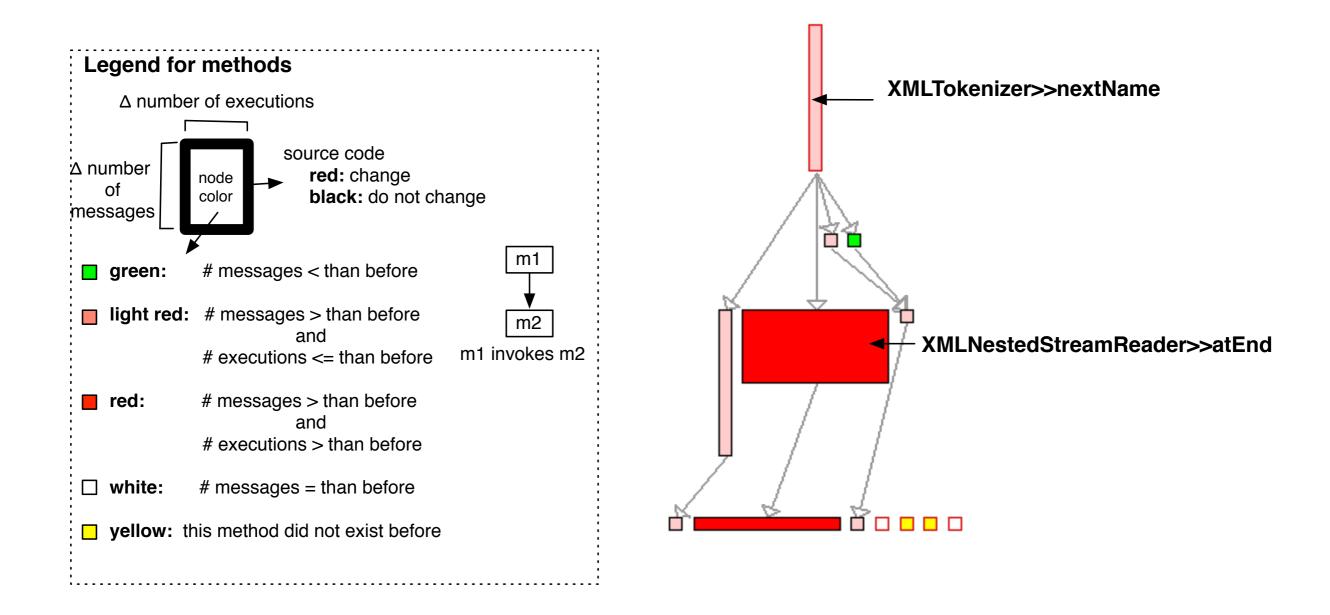


### **Benchmarks**

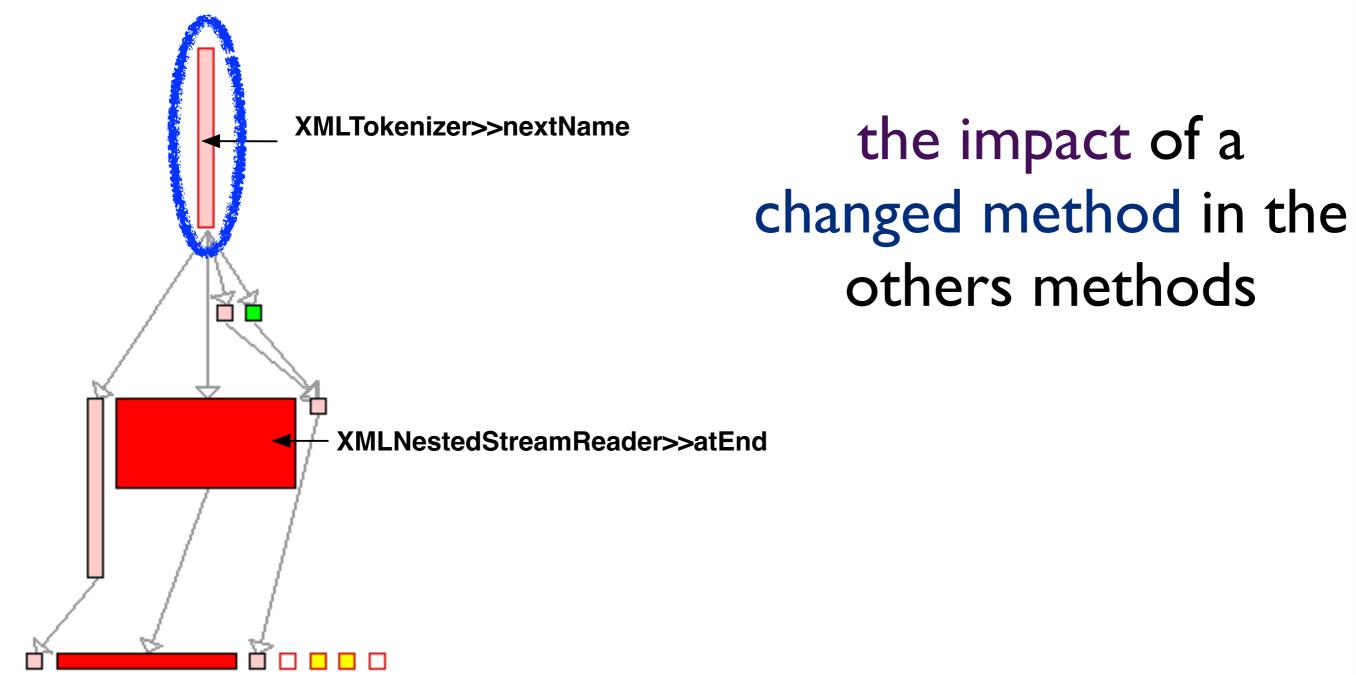


### **Benchmarks**









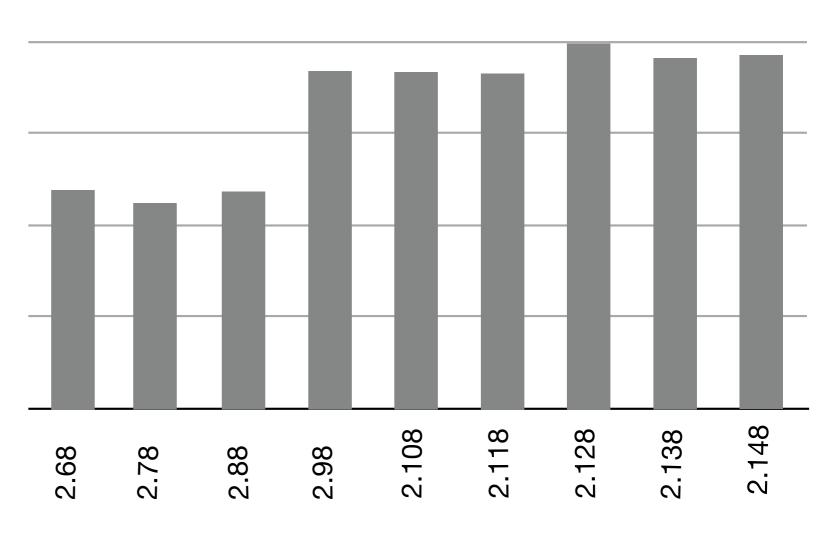


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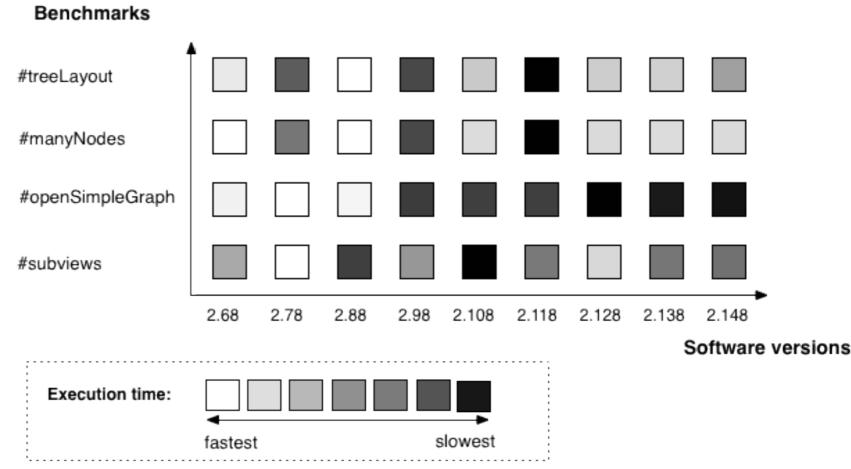
# Conclusions

- Performance Evolution
- Multidimensional Profiling
- Future Work



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