

Online appendix for the paper
Practical Run-time Checking
via Unobtrusive Property Caching
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Appendix A

This appendix includes plots of the run-time checking overhead observed in the set of 7 benchmarks for different cache replacement policies. There are four groups of plots:

- overhead ratio plots, where overhead ratio curves are grouped by cache size and check depth limit (Figures A 1 and A 5);
- overhead ratio plots, where overhead ratio curves are grouped by benchmark and check depth limit (Figures A 2 and A 6);
- maximal regtype check depth reached plots, where check depth curves are grouped by benchmark and cache size (Figures A 3 and A 7);
- absolute and relative benchmark execution time plots for benchmarks without rtchecks, with rtchecks and with both rtchecks and caching (Figures A 4 and A 8).

A.1 “Least Recently Used” Cache Replacement Policy

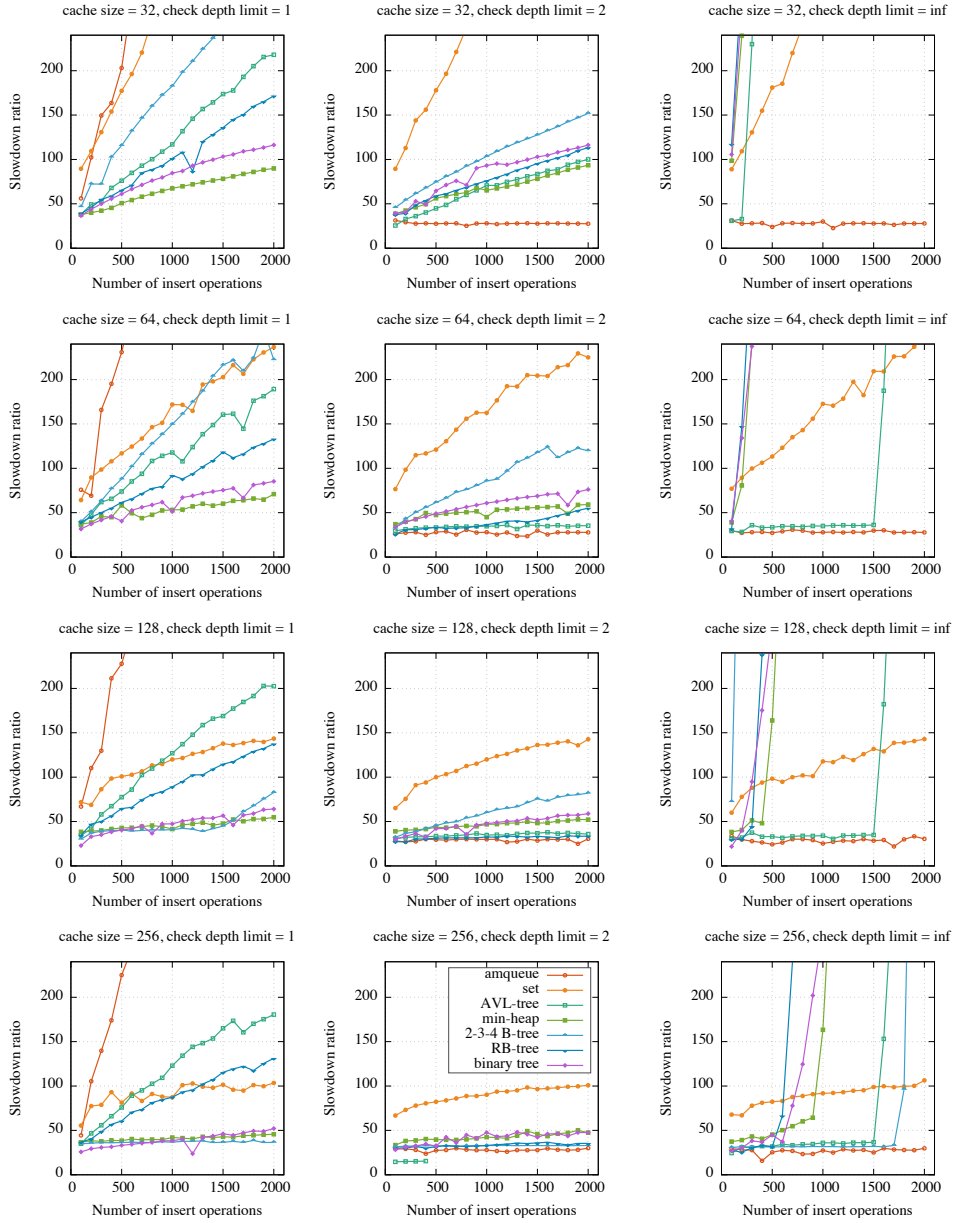


Fig. A 1: Overhead ratios for all benchmarks, check depth limits 1, 2 and ∞ , LRU caching policy.

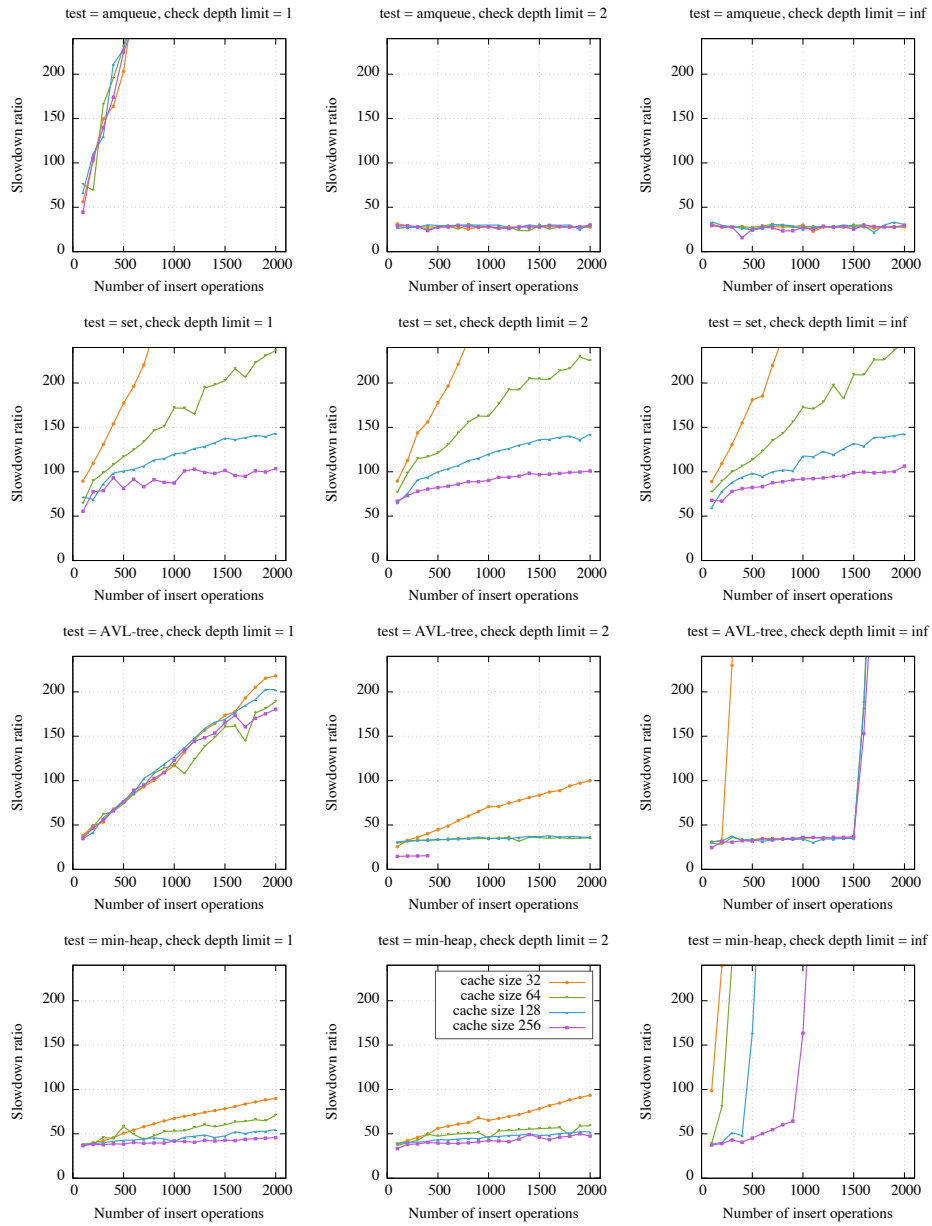


Fig. A 2: Overhead ratios for each benchmark, check depth limits 1, 2 and ∞ , LRU caching policy.

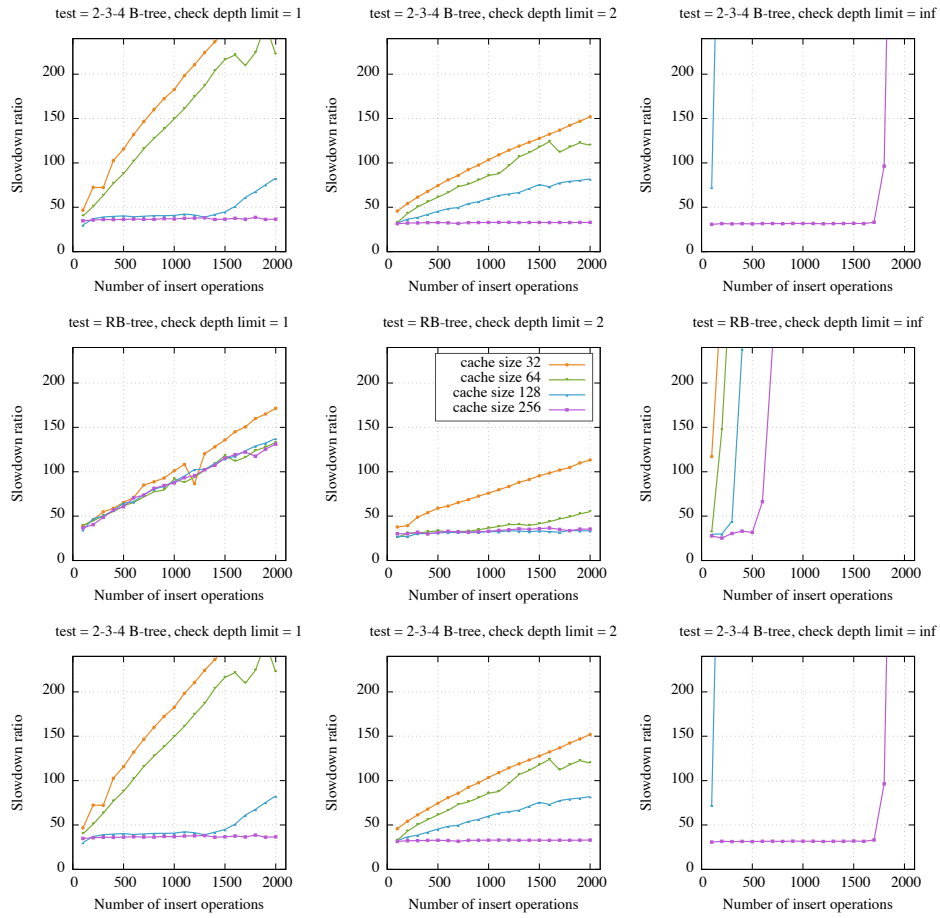


Fig. A 2: Overhead ratios for each benchmark, check depth limits 1, 2 and ∞ , LRU caching policy.

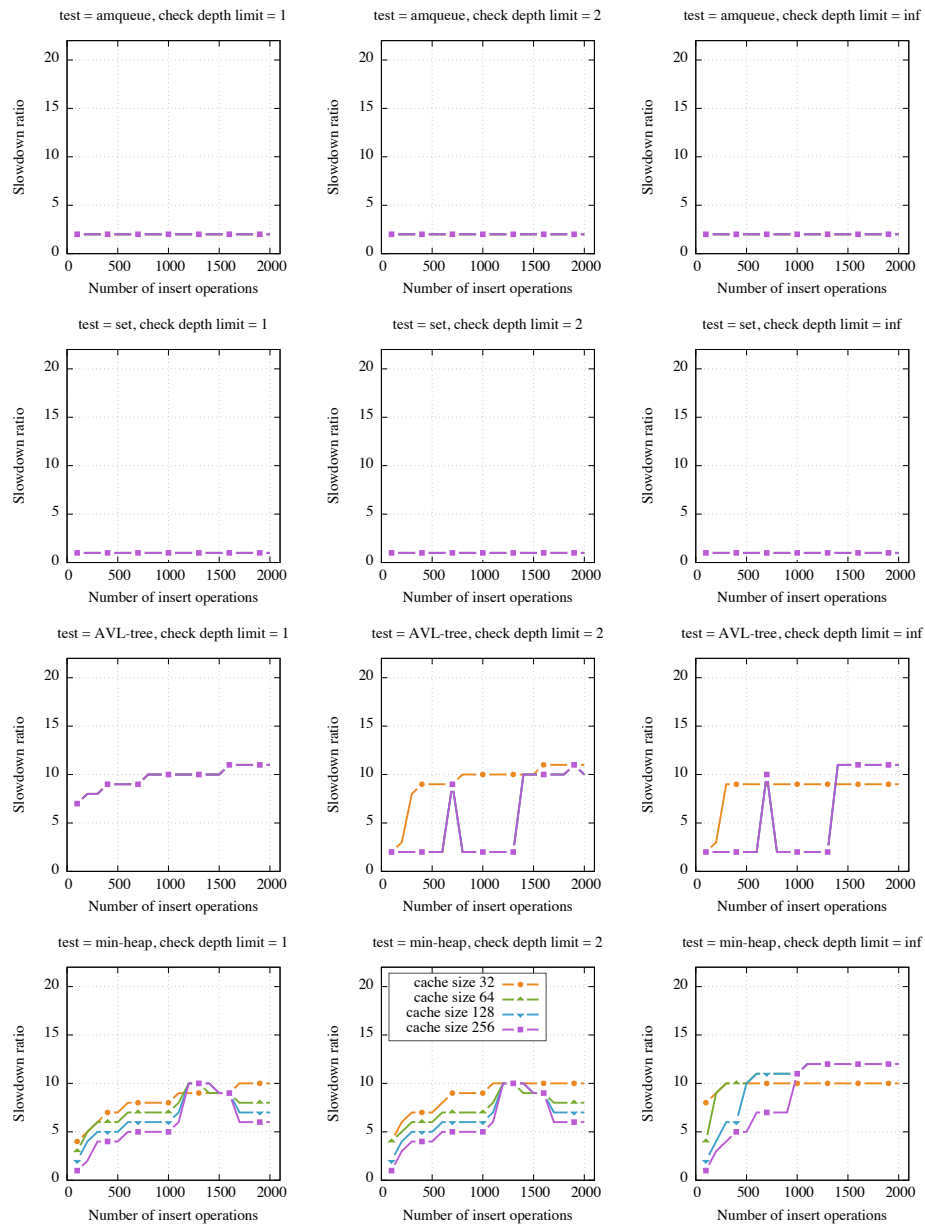


Fig. A 3: Max regtype check depth for each benchmark, check depth limits 1, 2 and ∞ , LRU caching policy.

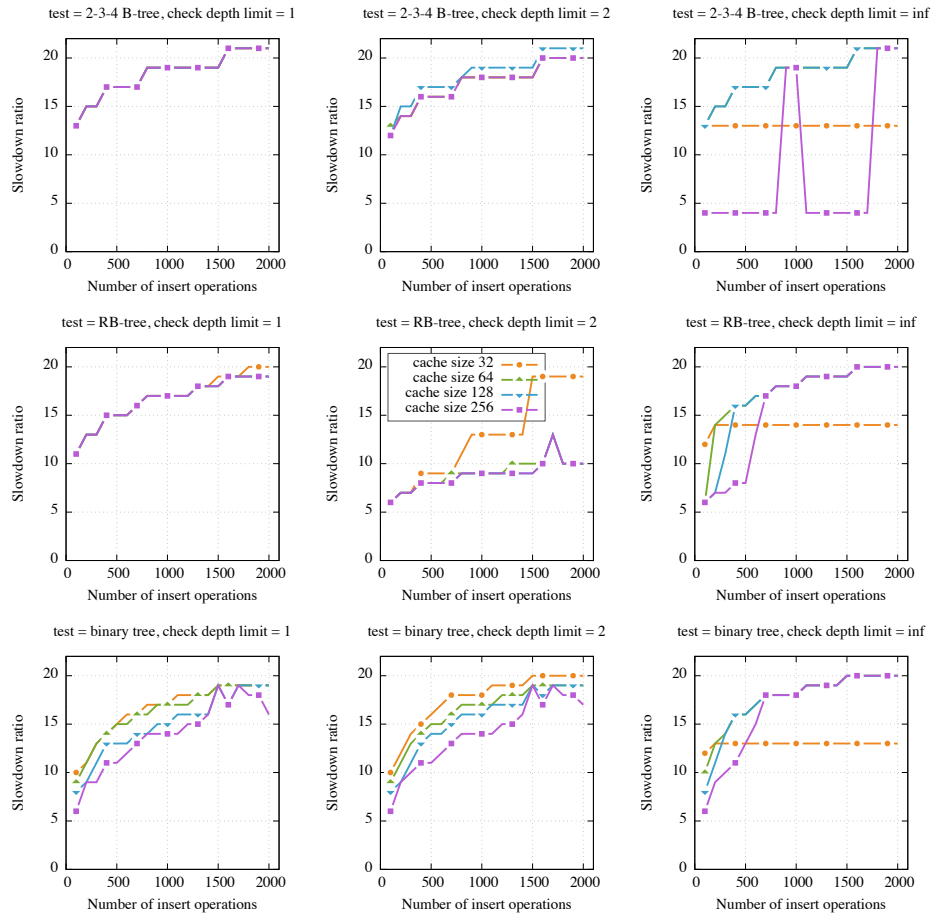


Fig. A 3: Max regtype check depth for each benchmark, check depth limits 1, 2 and ∞ , LRU caching policy.

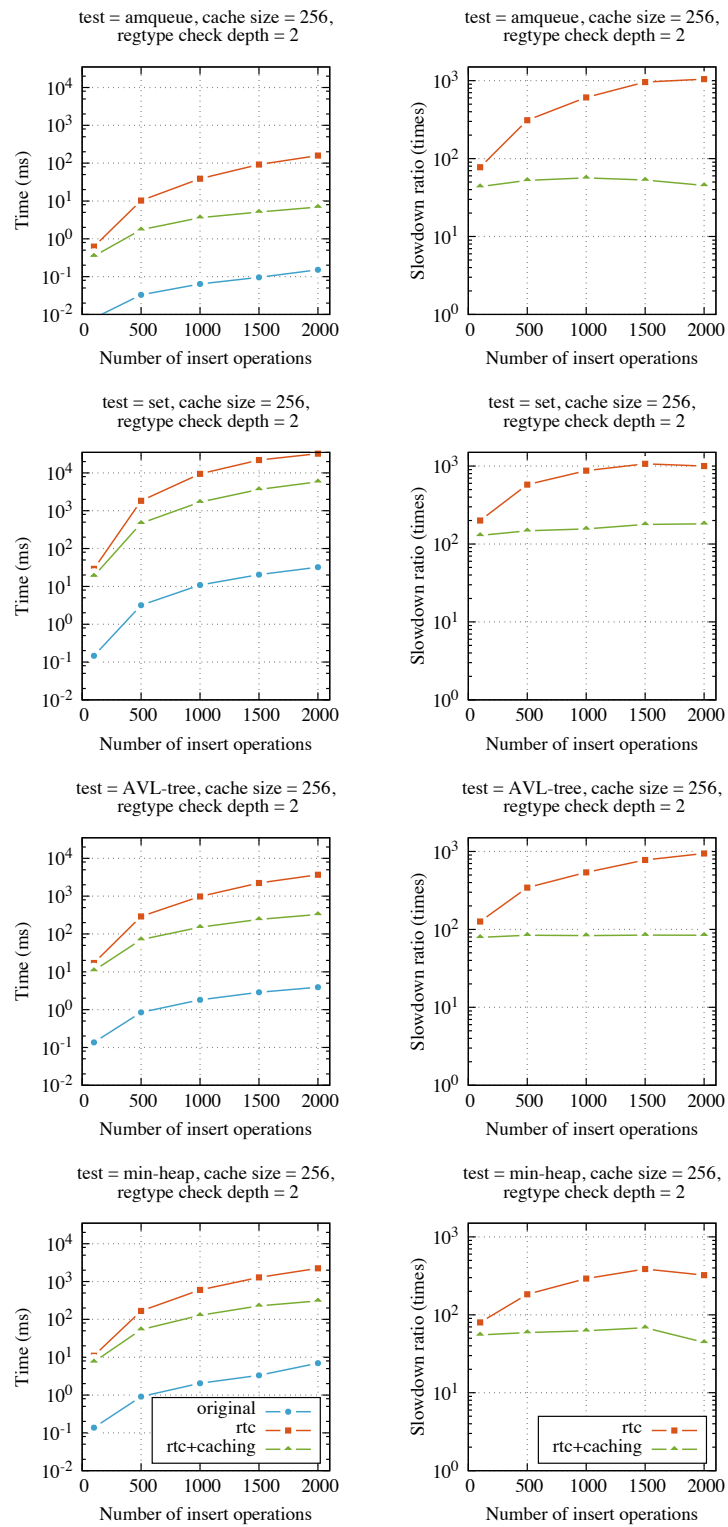


Fig. A 4: Absolute and relative benchmark running times, cache size 256 elements, check depth limit 2, LRU caching policy.

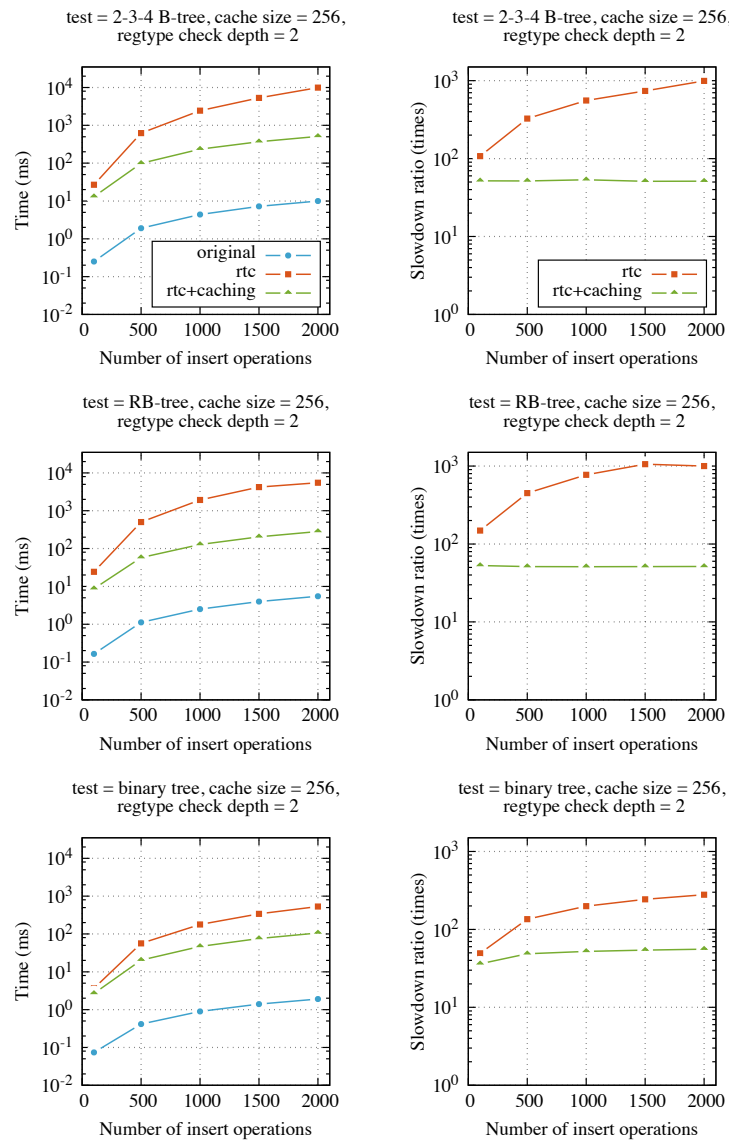


Fig. A 4: Absolute and relative benchmark running times, cache size 256 elements, check depth limit 2, LRU caching policy.

A.2 Direct Mapping Cache Replacement Policy

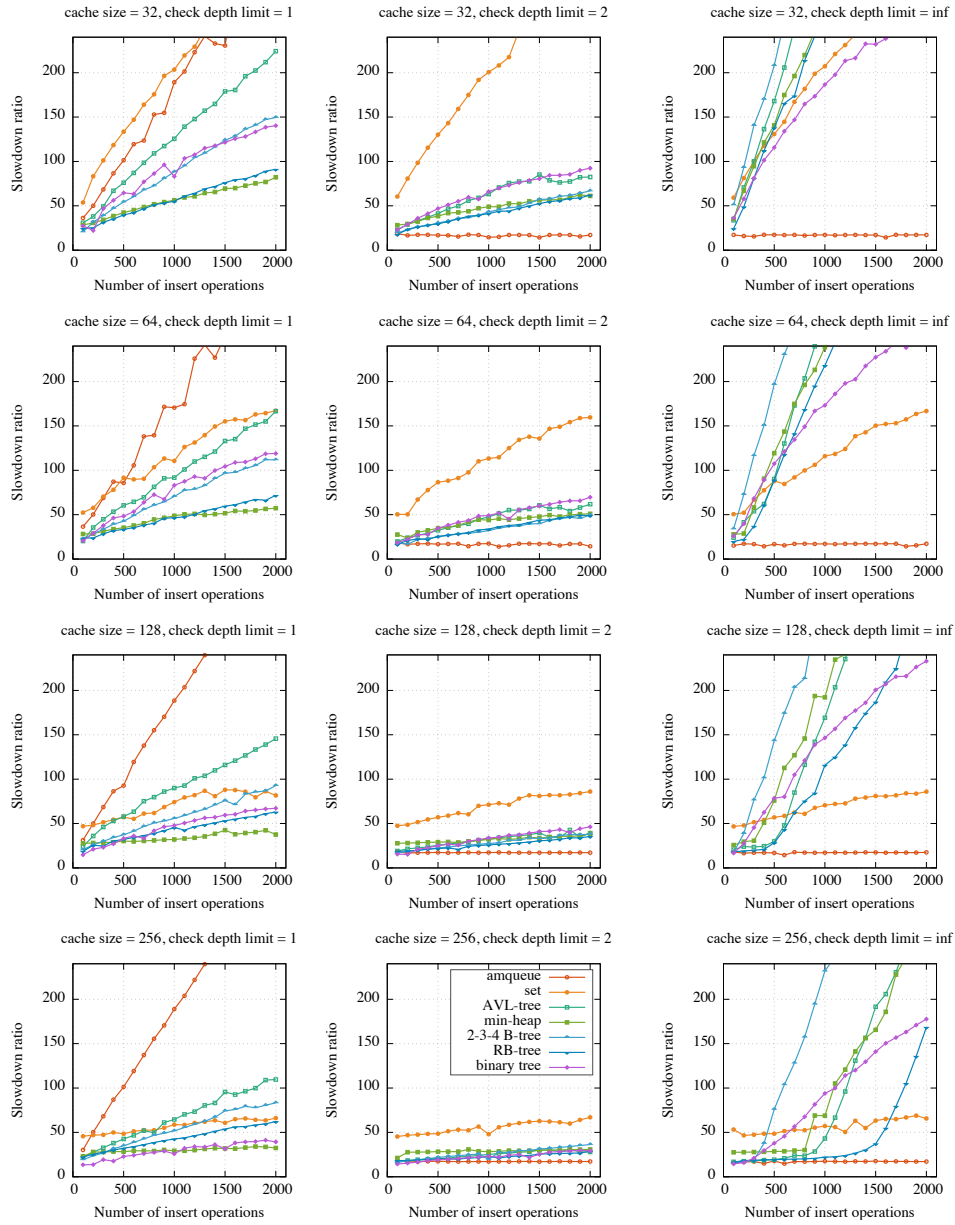


Fig. A 5: Overhead ratios for all benchmarks, check depth limits 1, 2 and ∞ , DM caching policy.

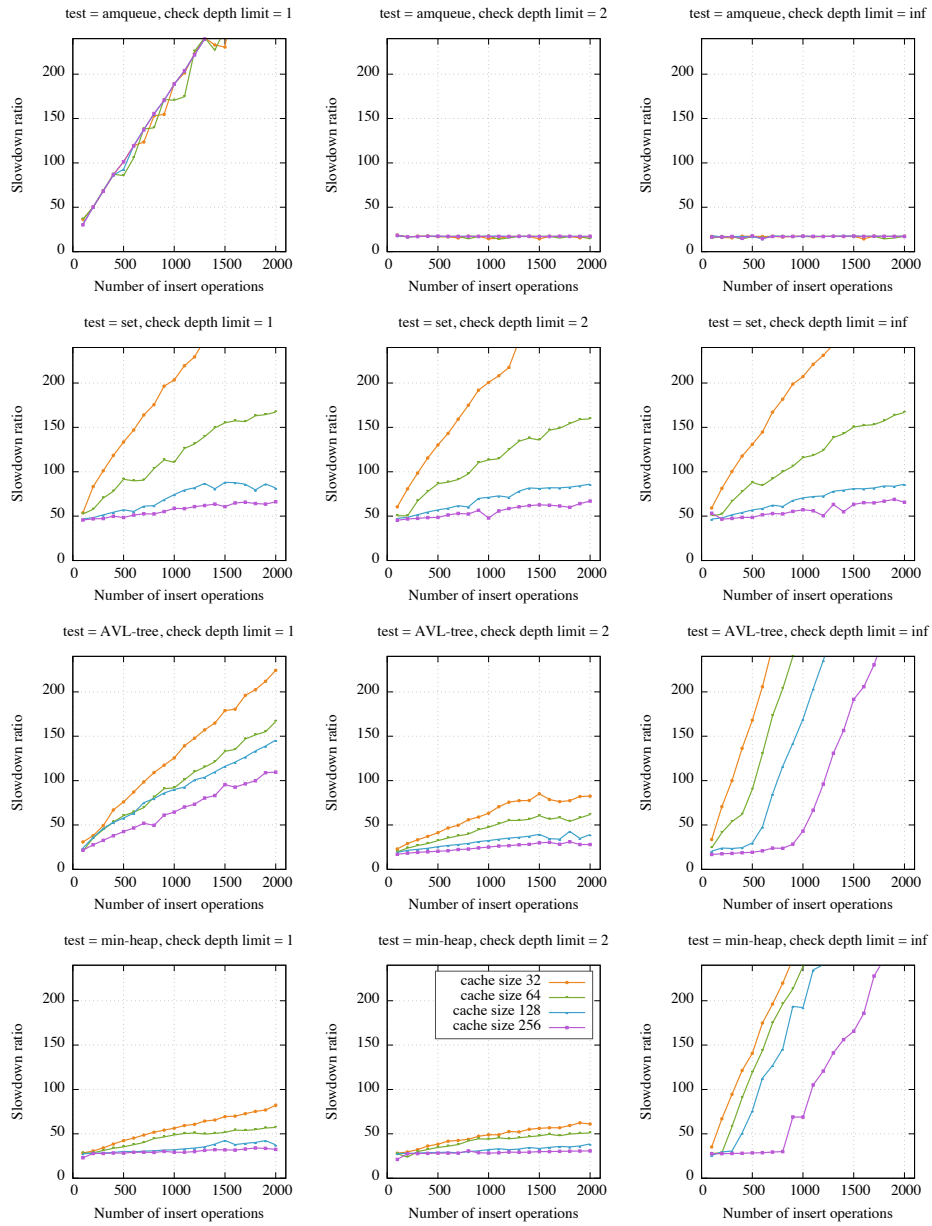


Fig. A 6: Overhead ratios for each benchmark, check depth limits 1, 2 and ∞ , DM caching policy.

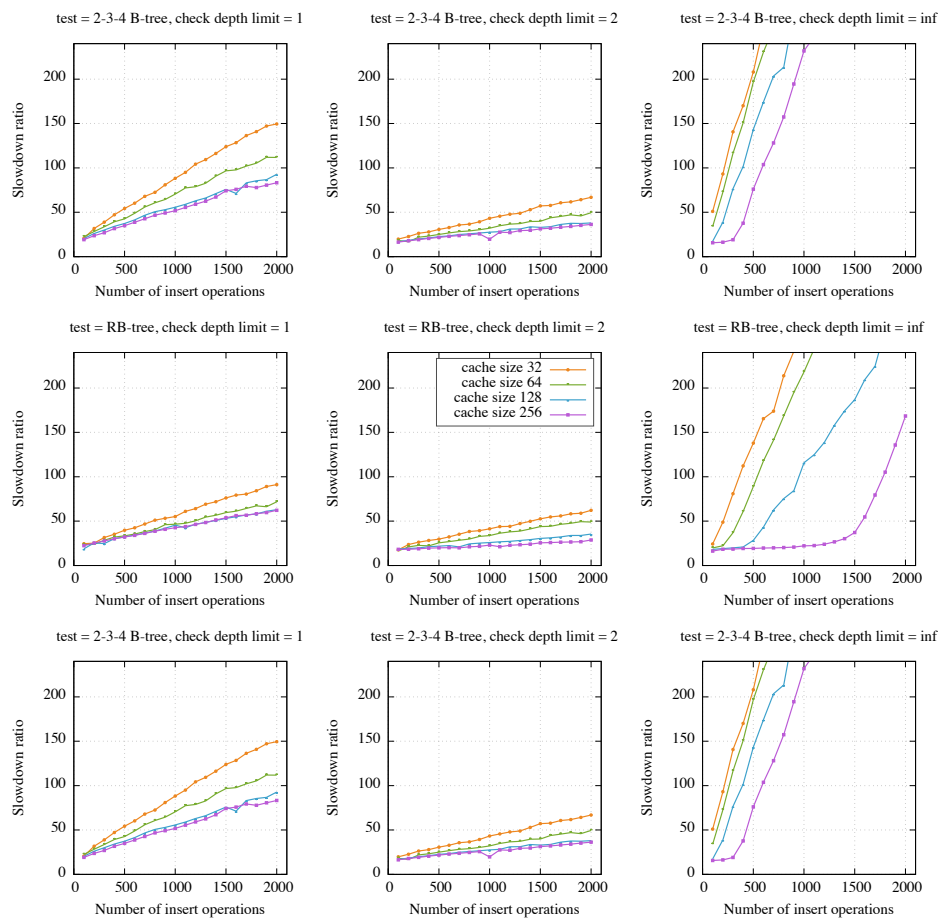


Fig. A 6: Overhead ratios for each benchmark, check depth limits 1, 2 and ∞ , DM caching policy.

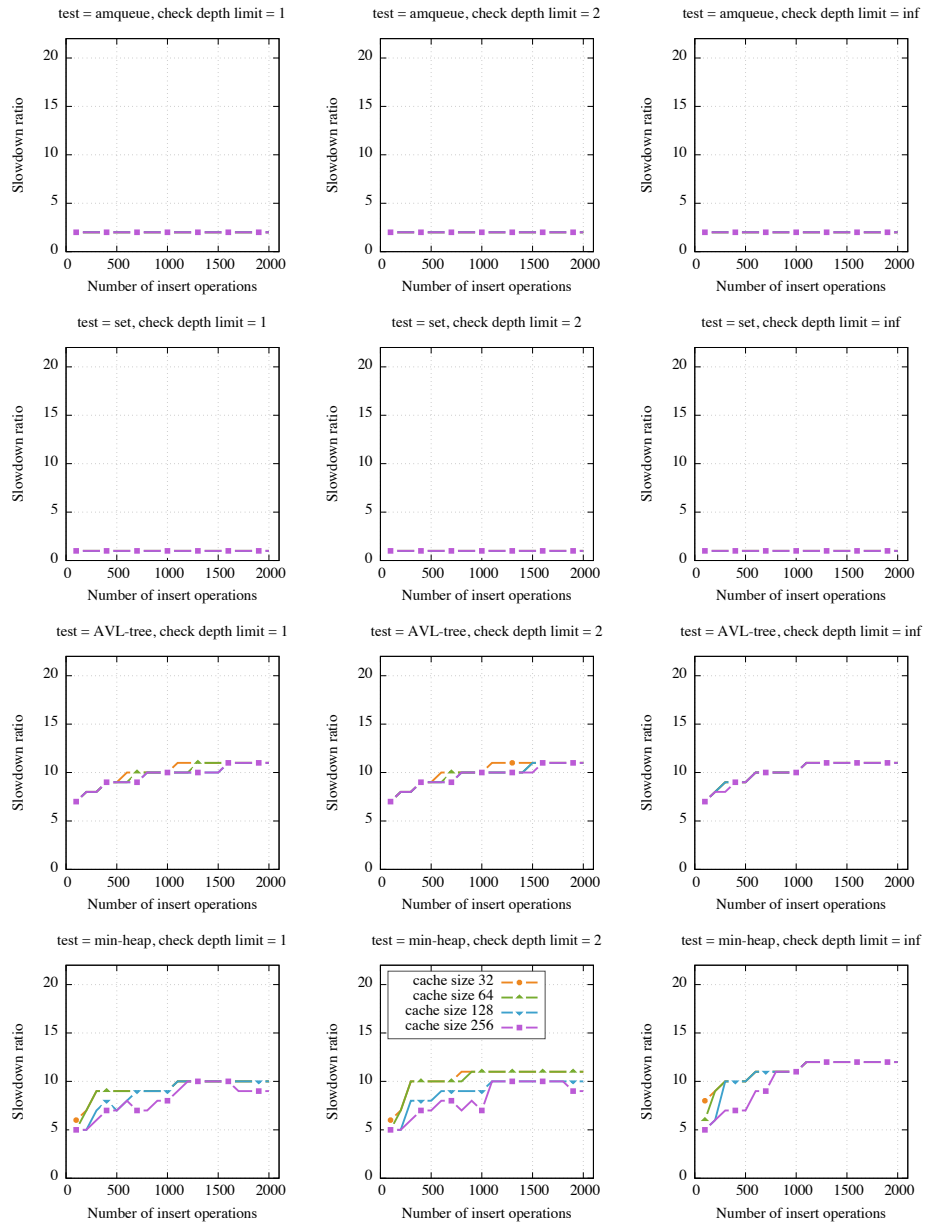


Fig. A 7: Max regtype check depth for each benchmark, check depth limits 1, 2 and ∞ , DM caching policy.

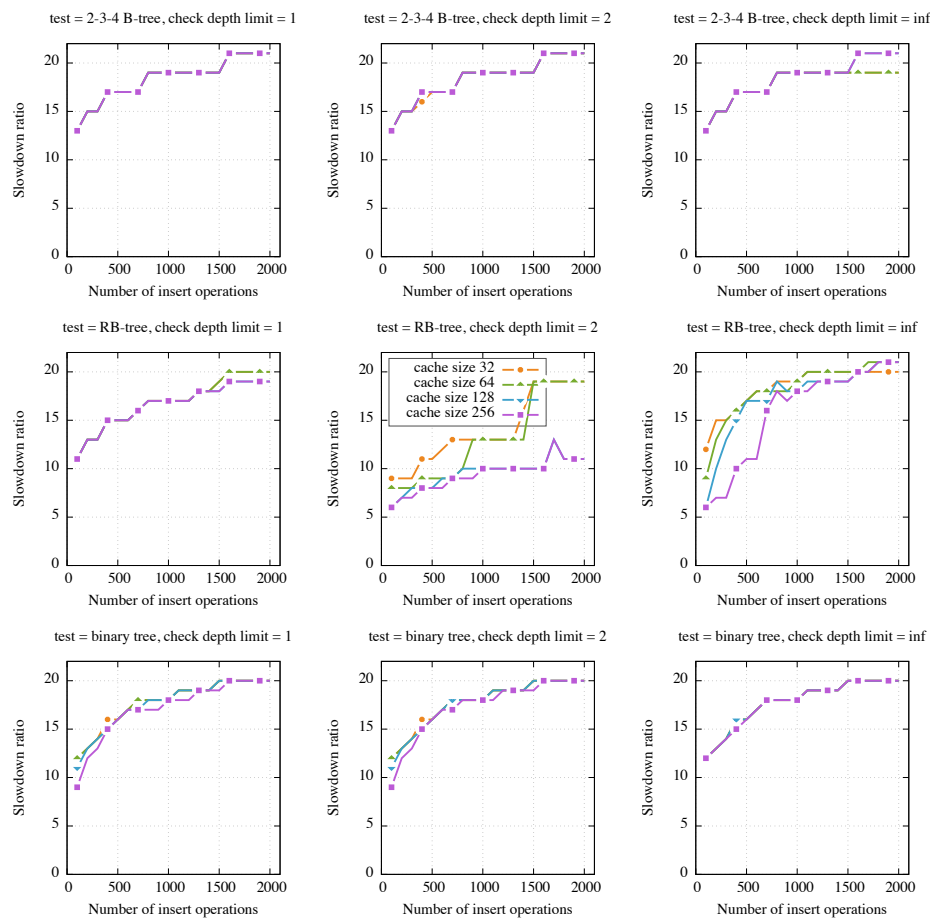


Fig. A 7: Max regtype check depth for each benchmark, check depth limits 1, 2 and ∞ , DM caching policy.

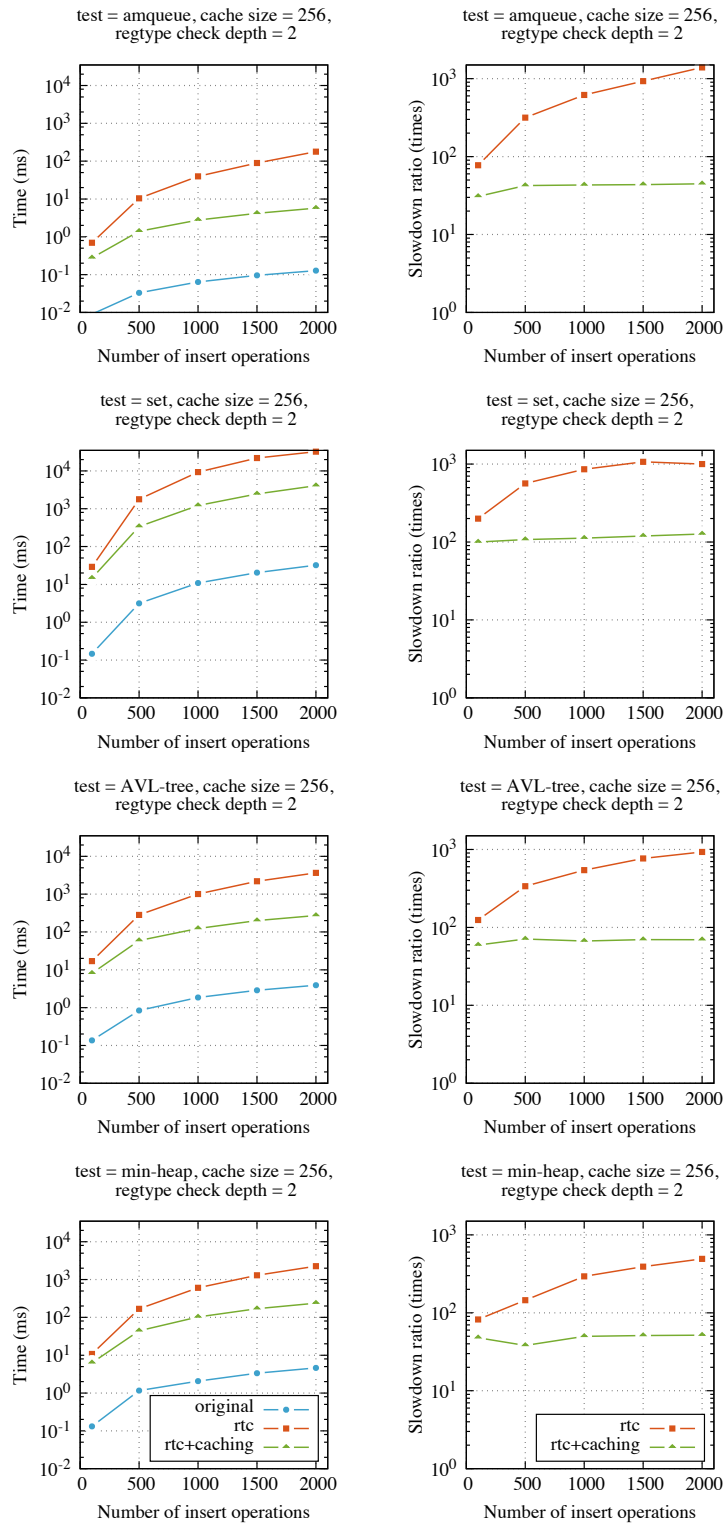


Fig. A 8: Absolute and relative benchmark running times, cache size 256 elements, check depth limit 2, DM caching policy.

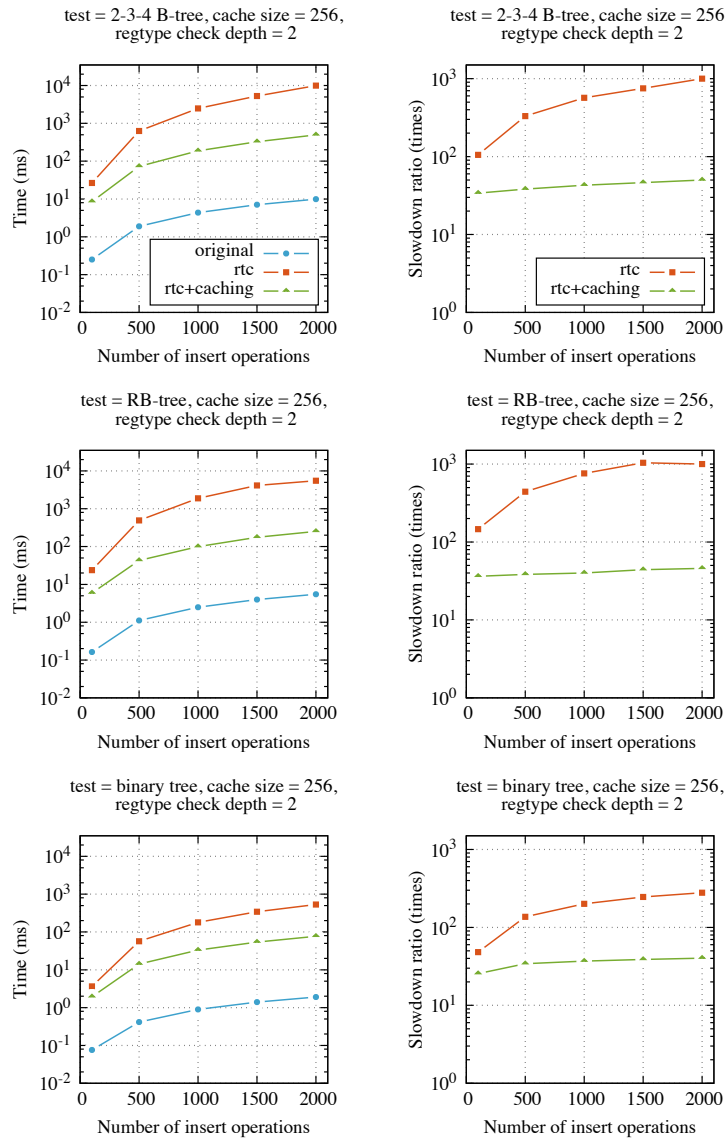


Fig. A 8: Absolute and relative benchmark running times, cache size 256 elements, check depth limit 2, DM caching policy.