

Figure 1: timing-pattern

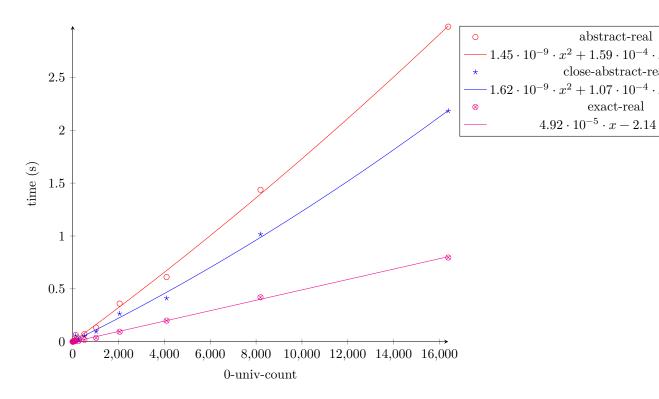
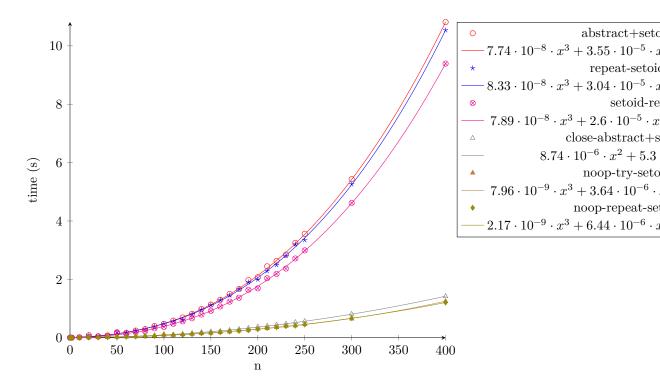


Figure 2: timing-n-polymorphic-universes param-1-n $\,0\,$



 $Figure \ 3: \ timing-repeat-setoid-rewrite-under-binders$

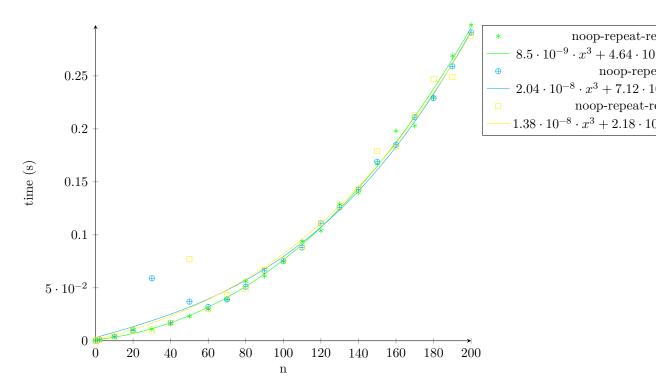


Figure 4: timing-repeat-setoid-rewrite-under-binders-noop

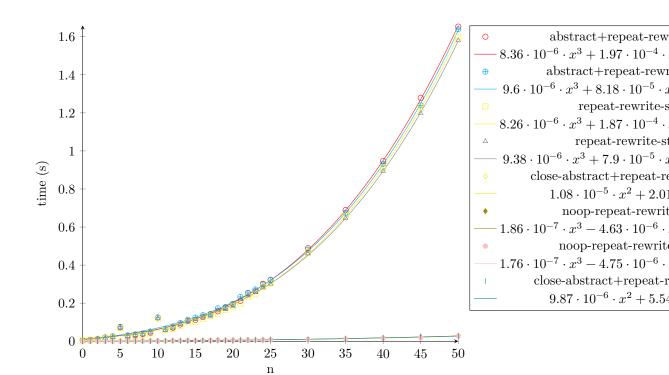
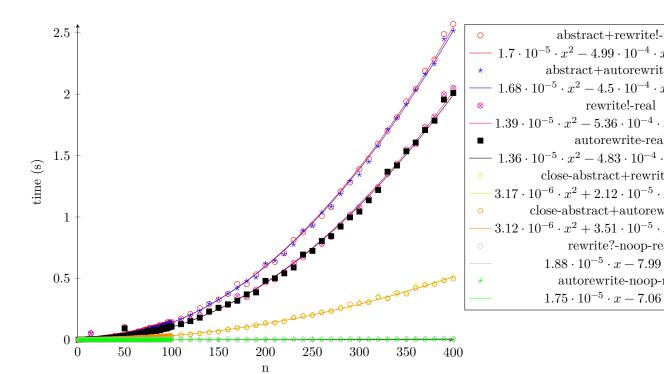
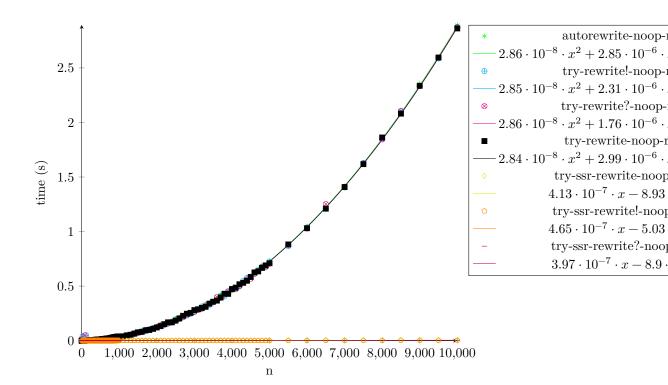


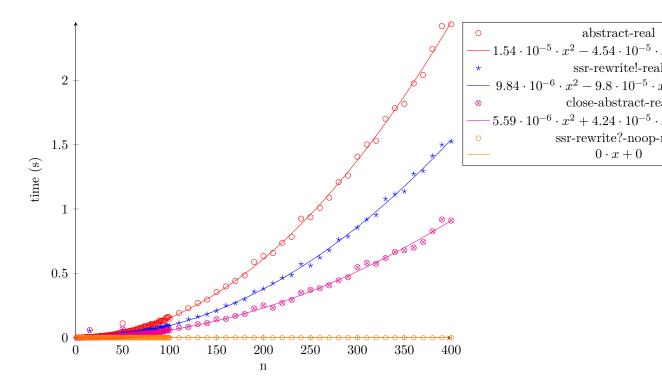
Figure 5: timing-rewrite-strat-under-binders



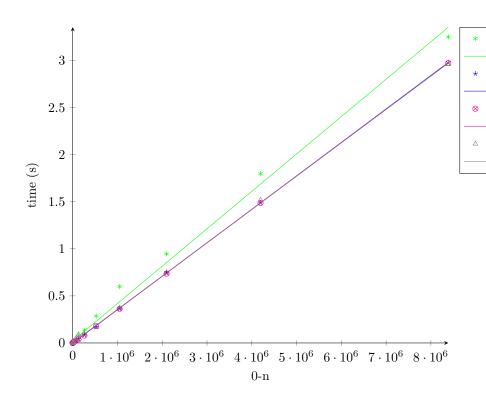
 $Figure \ 6: \ timing-rewrite-repeated-app-autorewrite \\$



 $Figure~7:~timing\mbox{-rewrite-repeated-app-autorewrite-noop}$



 $Figure \ 8: \ timing-rewrite-repeated-app-ssrrewrite \\$



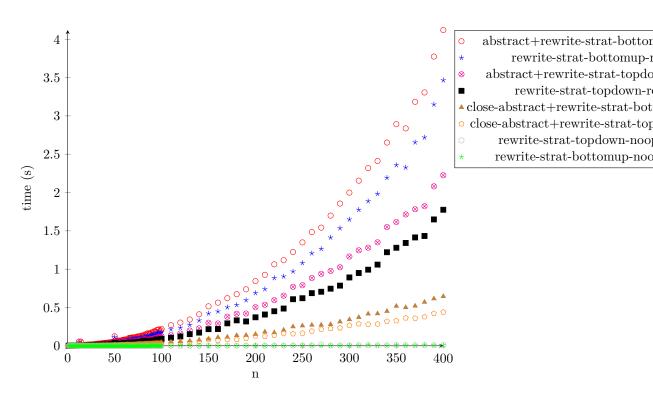
try-ssr-rewrite!-cold-noop-rea $3.97\cdot 10^{-7}\cdot x + 2.18\cdot 10^{-2}$

try-ssr-rewrite-noop-real $3.55\cdot 10^{-7}\cdot x - 1.88\cdot 10^{-3}$

$$\label{eq:try-ssr-rewrite} \begin{split} &\text{try-ssr-rewrite?-noop-real}\\ &3.54\cdot 10^{-7}\cdot x - 1.65\cdot 10^{-3}\\ &\text{try-ssr-rewrite!-noop-real} \end{split}$$

 $3.54 \cdot 10^{-7} \cdot x + 3.24 \cdot 10^{-3}$

Figure 9: timing-rewrite-repeated-app-ssrrewrite-noop param-1-lgn $\ 1$



abstract + rewrite-strat-botton

rewrite-strat-bottomup-r abstract+rewrite-strat-topdo

rewrite-strat-topdown-re

rewrite-strat-topdown-noop

rewrite-strat-bottomup-noo

 $Figure\ 10:\ timing-rewrite-repeated-app-rewrite-strat$

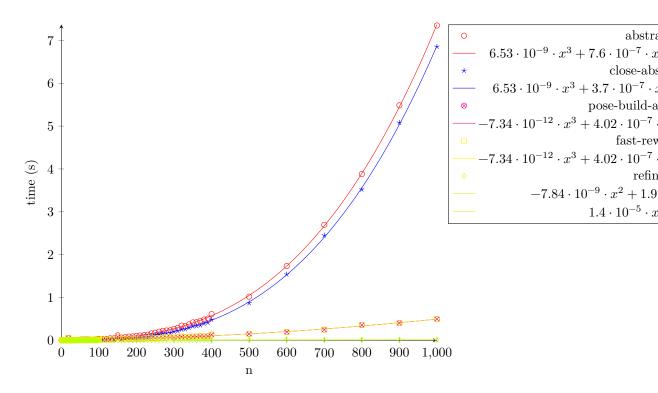
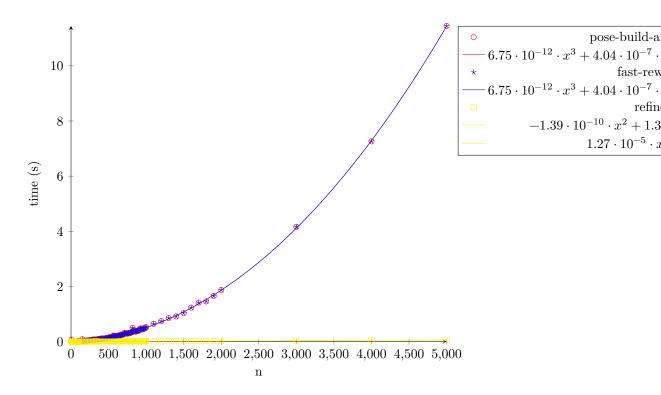


Figure 11: timing-rewrite-repeated-app-fast-rewrite



Figure~12:~timing-rewrite-repeated-app-fast-rewrite-no-abstract

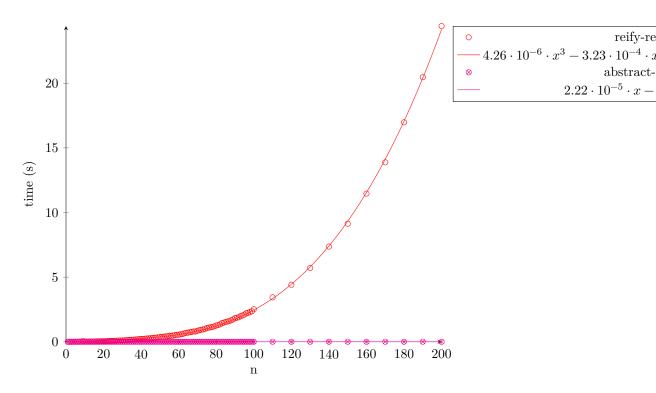


Figure 13: timing-typeclass-reification-let-in-HOAS

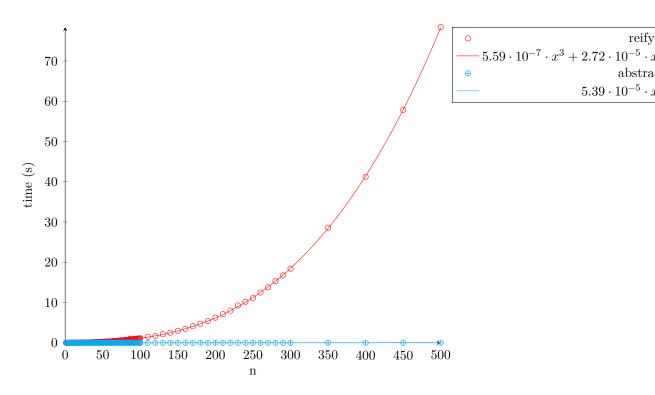


Figure 14: timing-typeclass-reification-let-in-PHOAS

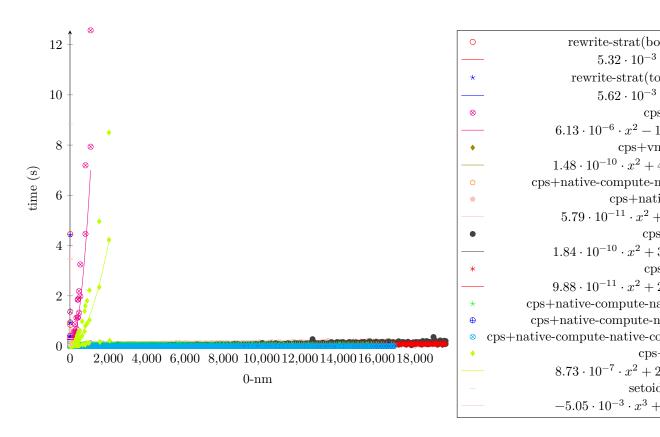


Figure 15: timing-rewrite-lift-lets-map param-1-n 1, param-2-m 1 $\,$

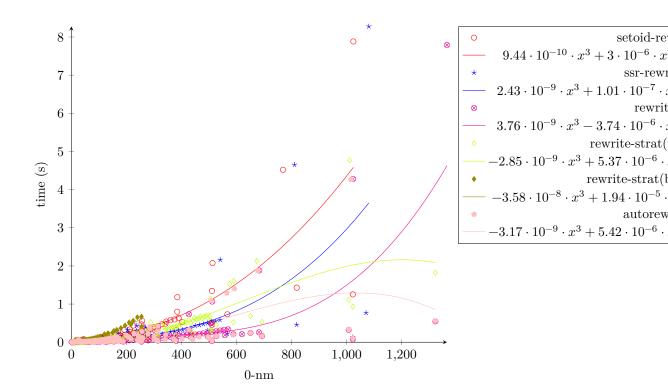


Figure 16: timing-rewrite-plus-0-tree param-1-n 0, param-2-m 1, param-3-input-size 5, param-4-output-size 3, param-5-num-rewrites 1

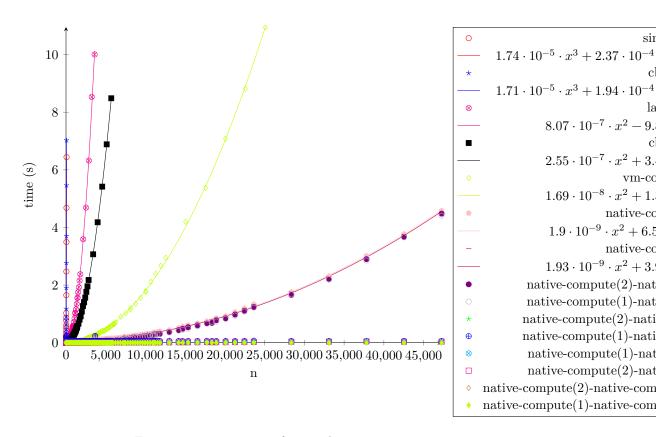


Figure 17: timing-sieve-of-eratosthenes

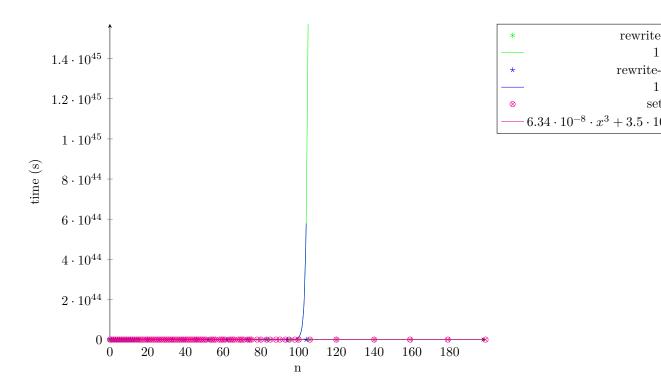


Figure 18: timing-rewrite-under-lets-plus-0 $\,$

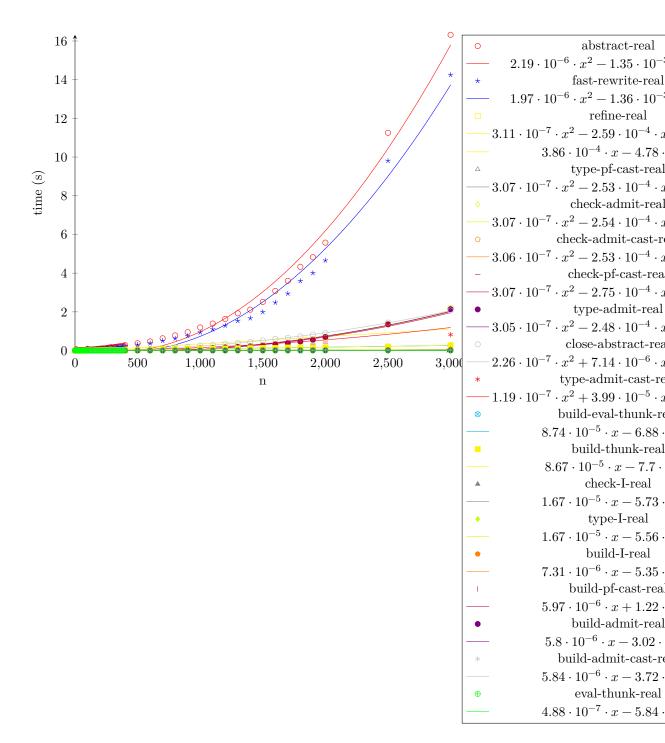


Figure 19: timing-rewrite-repeated-app-fast-rewrite-ltac2