

Figure 1: timing-pattern

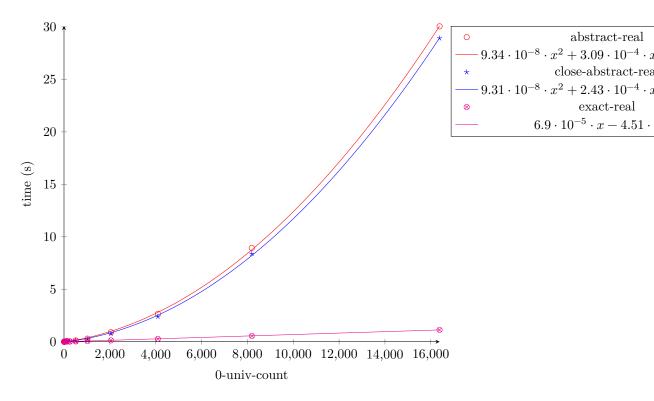


Figure 2: timing-n-polymorphic-universes param-1-n $\,0\,$

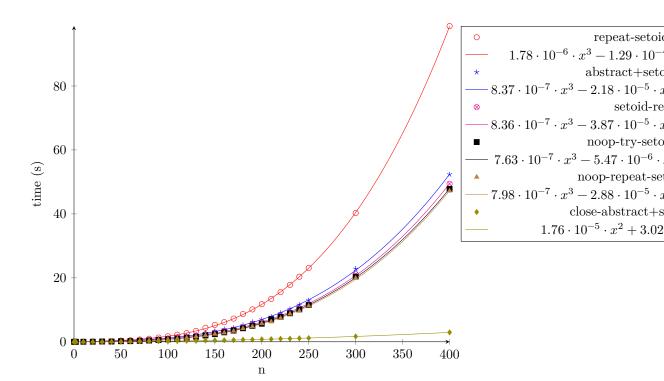


Figure 3: timing-repeat-setoid-rewrite-under-binders

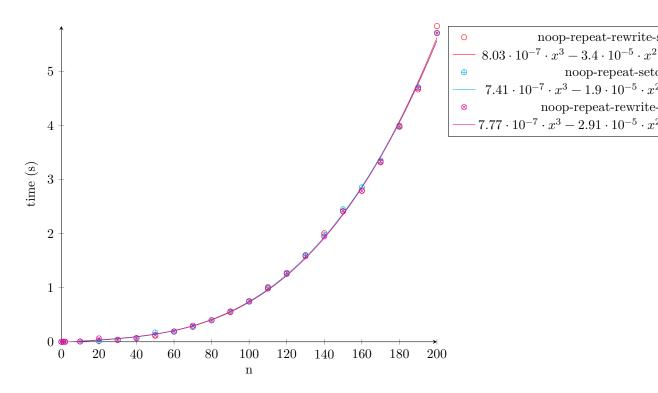
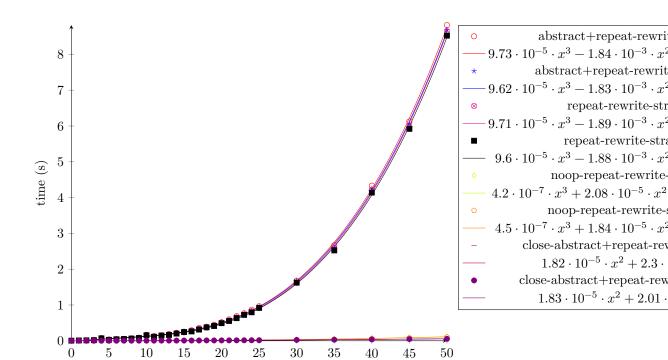
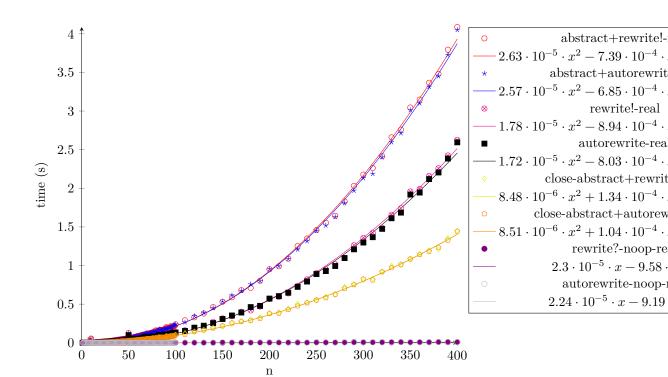


Figure 4: timing-repeat-setoid-rewrite-under-binders-noop



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

n



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

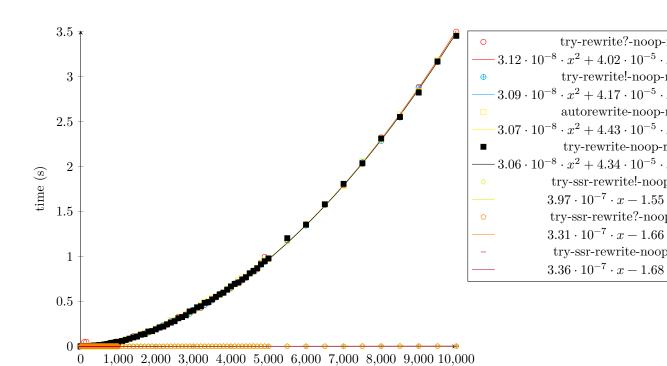
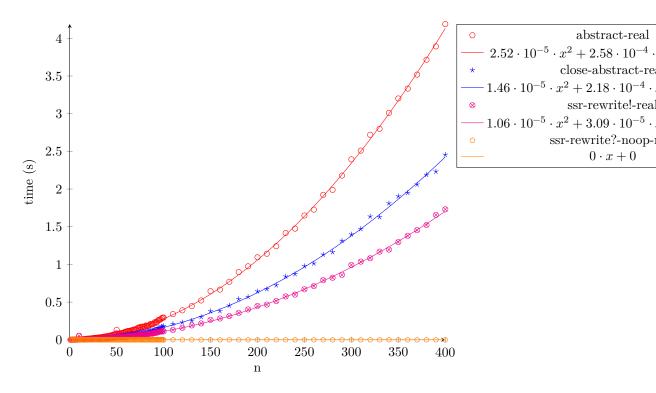
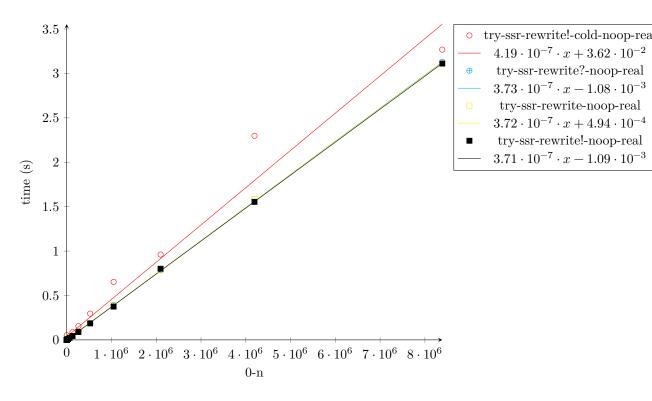


Figure 7: timing-rewrite-repeated-app-autorewrite-noop



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

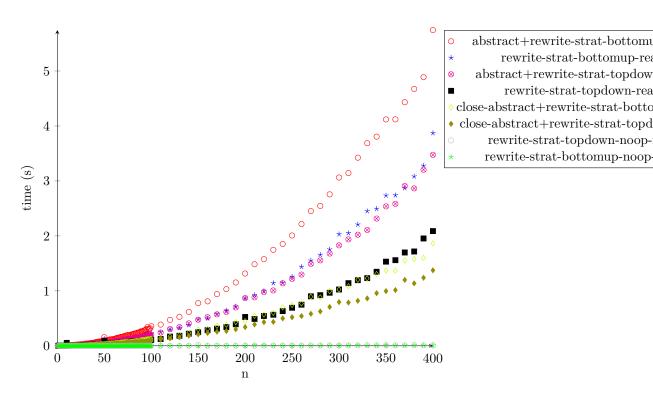


 $4.19\cdot 10^{-7}\cdot x + 3.62\cdot 10^{-2}$ try-ssr-rewrite?-noop-real

 $3.73\cdot 10^{-7}\cdot x - 1.08\cdot 10^{-3}$ try-ssr-rewrite-noop-real

 $3.72 \cdot 10^{-7} \cdot x + 4.94 \cdot 10^{-4}$ try-ssr-rewrite!-noop-real $3.71\cdot 10^{-7}\cdot x - 1.09\cdot 10^{-3}$

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



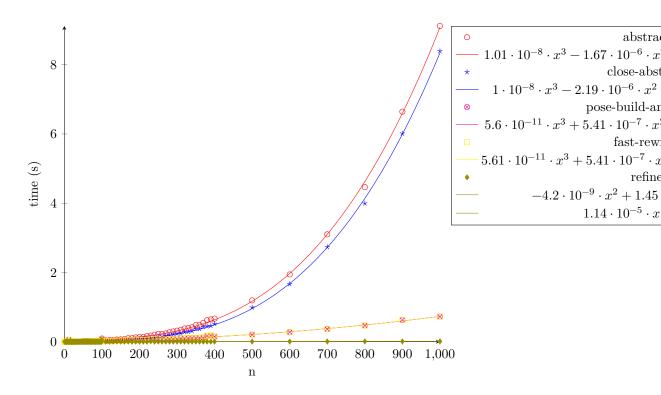
rewrite-strat-bottomup-rea

rewrite-strat-topdown-rea

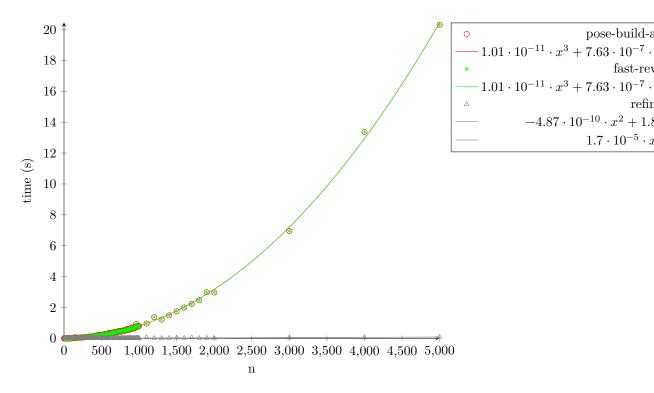
rewrite-strat-topdown-nooprewrite-strat-bottomup-noop-

abstract + rewrite - strat - topdow

 $Figure~10:~timing\mbox{-rewrite-repeated-app-rewrite-strat}$



 $Figure~11:~timing\mbox{-rewrite-repeated-app-fast-rewrite}$



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

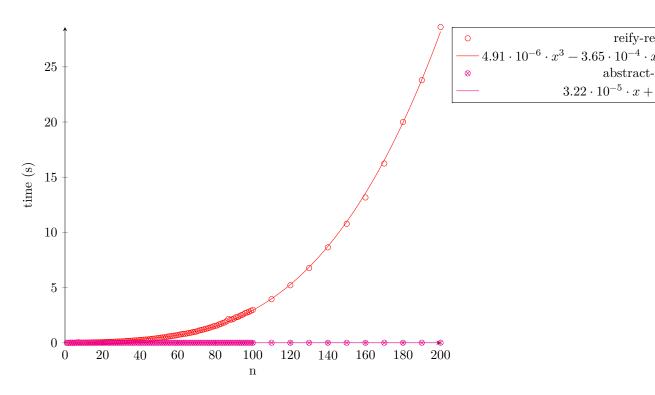


Figure 13: timing-typeclass-reification-let-in-HOAS

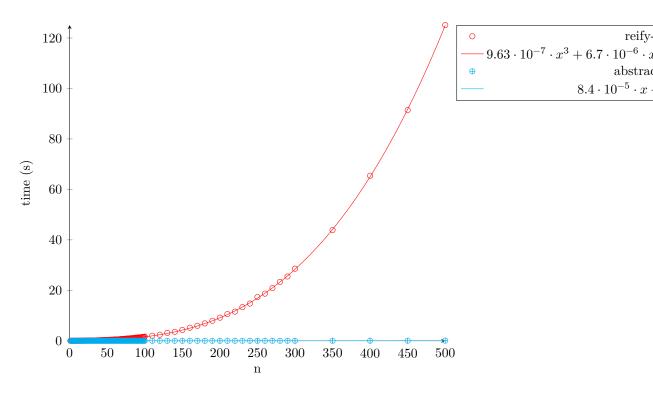


Figure 14: timing-typeclass-reification-let-in-PHOAS

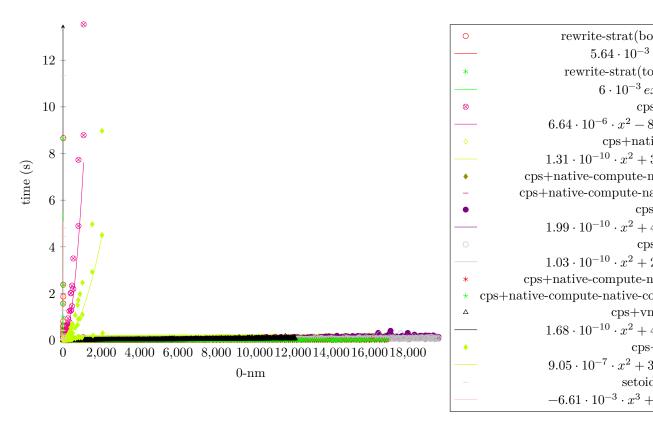


Figure 15: timing-rewrite-lift-lets-map param-1-n 1, param-2-m 1

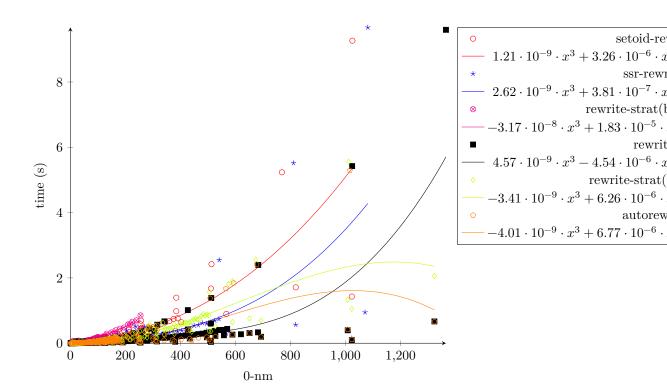
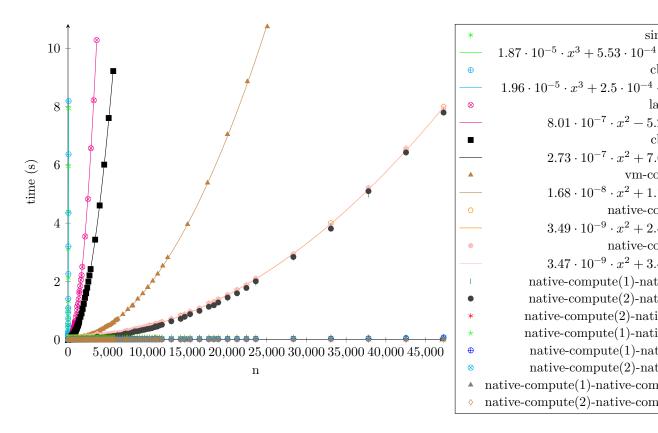
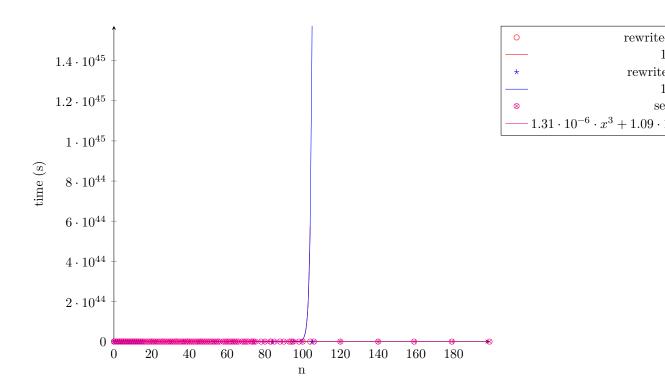


Figure 16: timing-rewrite-plus-0-tree param-1-n 0, param-2-m 1, param-3-input-size 5, param-4-output-size 3, param-5-num-rewrites 1



 $Figure\ 17:\ timing\mbox{-sieve-of-eratos} thenes$



rewrite

rewrite

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

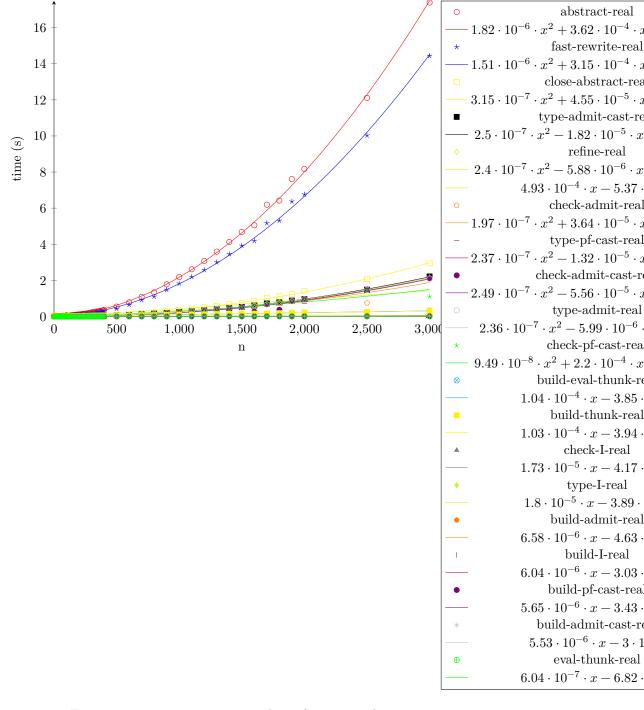


Figure 19: timing-rewrite-repeated-app-fast-rewrite-ltac2