

Figure 1: timing-pattern

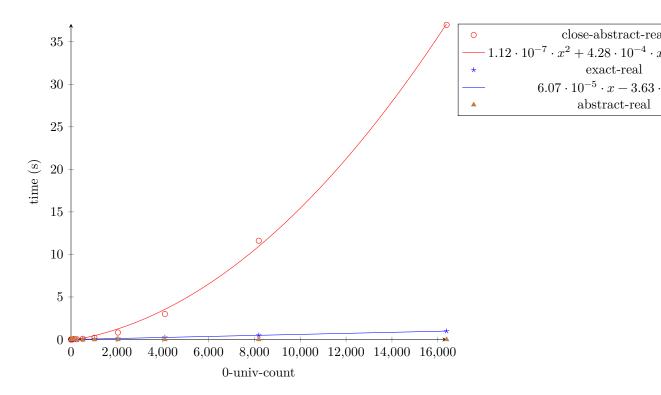


Figure 2: timing-n-polymorphic-universes param-1-n $\,0\,$

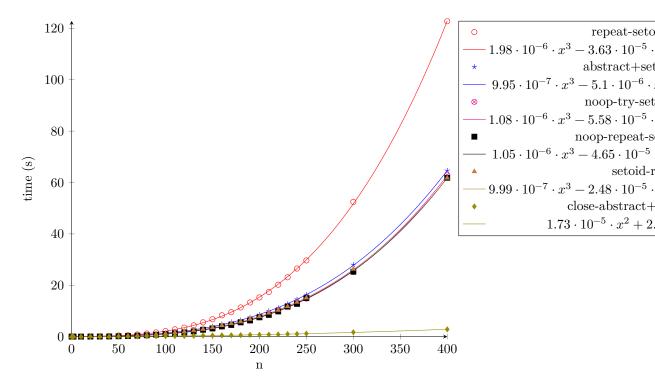
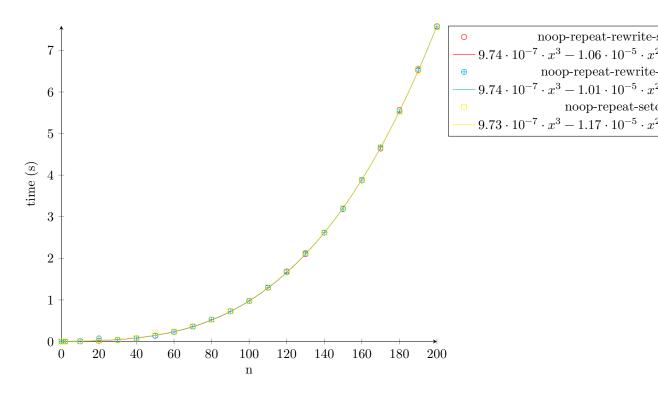
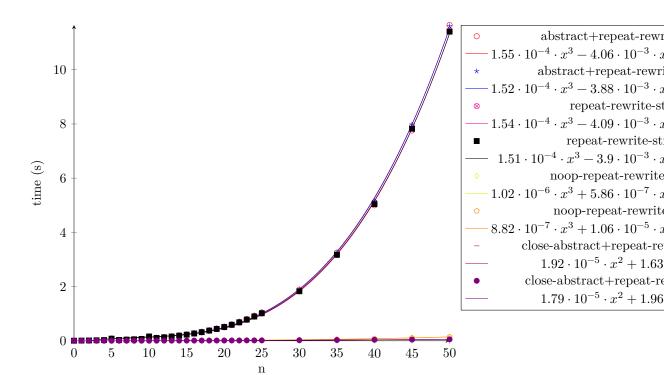


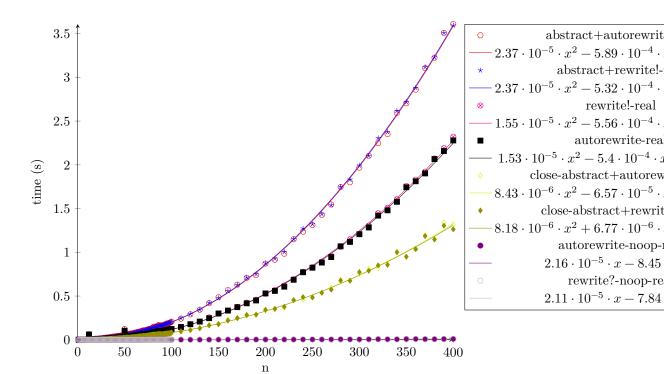
Figure 3: timing-repeat-setoid-rewrite-under-binders



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



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



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

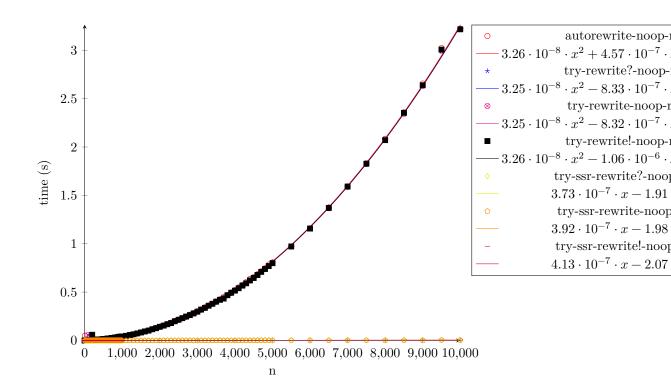


Figure 7: timing-rewrite-repeated-app-autorewrite-noop

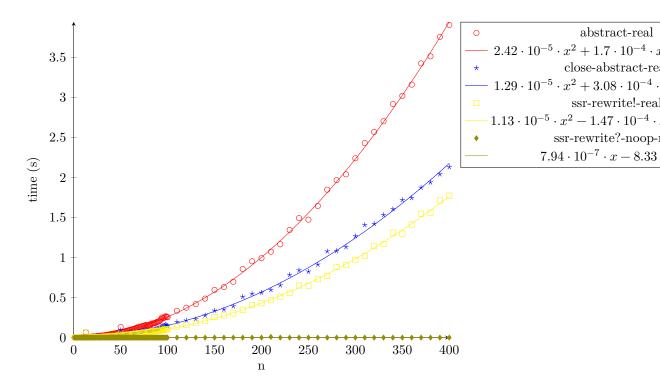
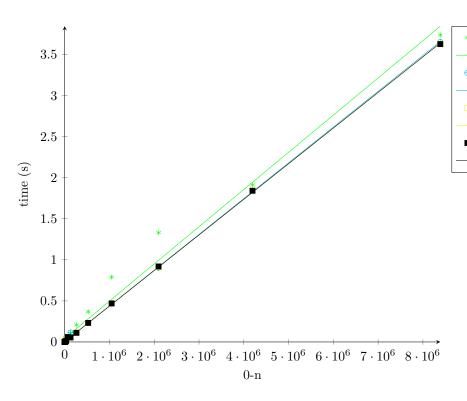


Figure 8: timing-rewrite-repeated-app-ssrrewrite



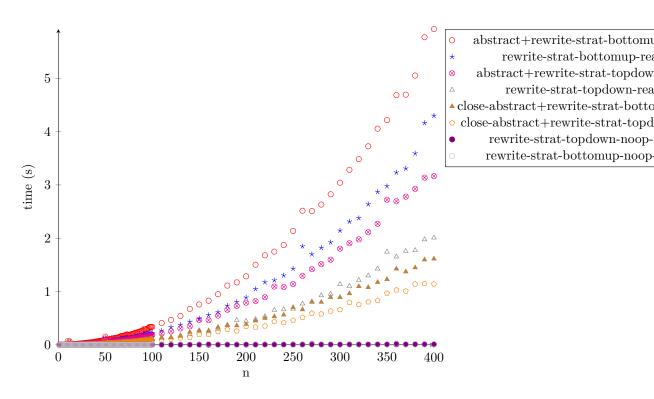
try-ssr-rewrite!-cold-noop-rea $4.53\cdot 10^{-7}\cdot x + 4.46\cdot 10^{-2}$

try-ssr-rewrite!-noop-real $4.35\cdot 10^{-7}\cdot x + 3.1\cdot 10^{-3}$

try-ssr-rewrite?-noop-real $4.34\cdot 10^{-7}\cdot x + 1.68\cdot 10^{-3}$

try-ssr-rewrite-noop-real $4.33\cdot 10^{-7}\cdot x + 2.99\cdot 10^{-3}$

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

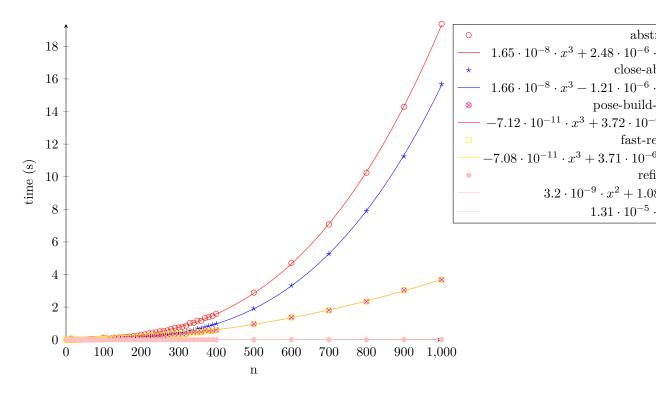


rewrite-strat-bottomup-rea abstract + rewrite - strat - topdow

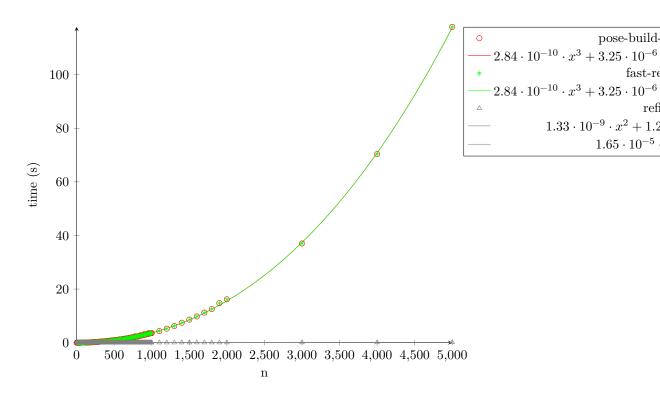
rewrite-strat-topdown-rea

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

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



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



 $Figure~12:~timing\mbox{-rewrite-repeated-app-fast-rewrite-no-abstract}$

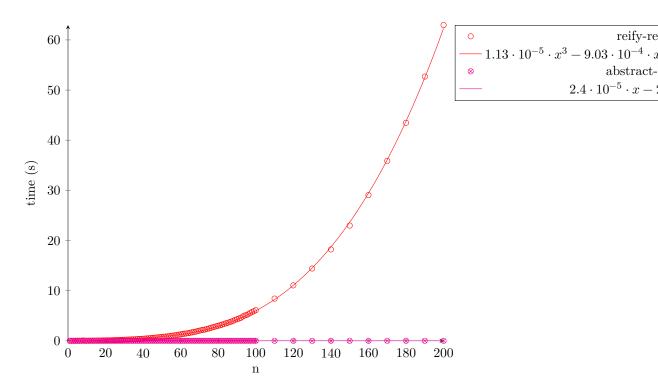


Figure 13: timing-typeclass-reification-let-in-HOAS

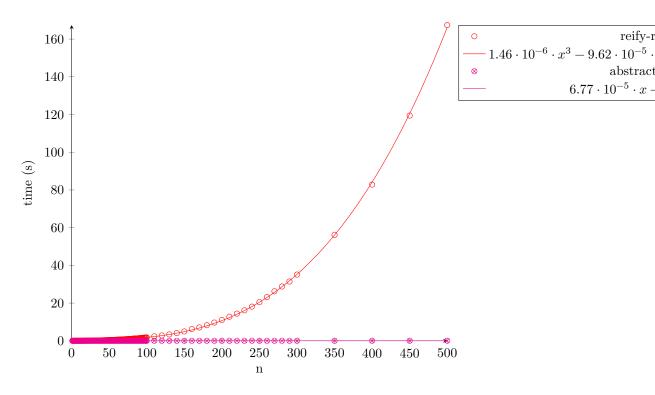


Figure 14: timing-typeclass-reification-let-in-PHOAS