

Figure 1: timing-pattern

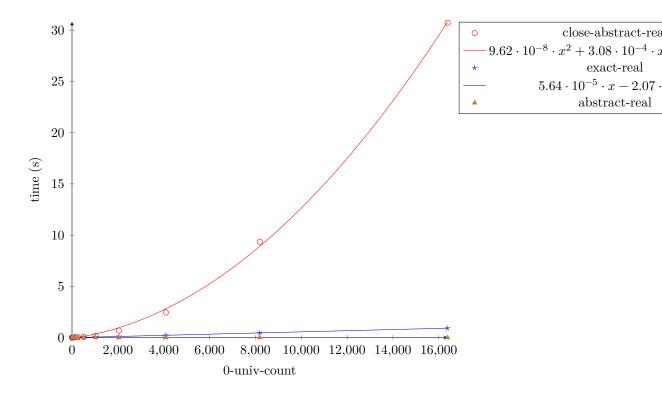
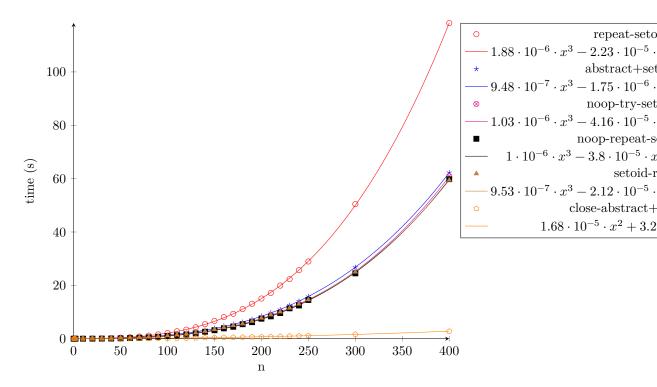


Figure 2: timing-n-polymorphic-universes param-1-n $\,0\,$



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

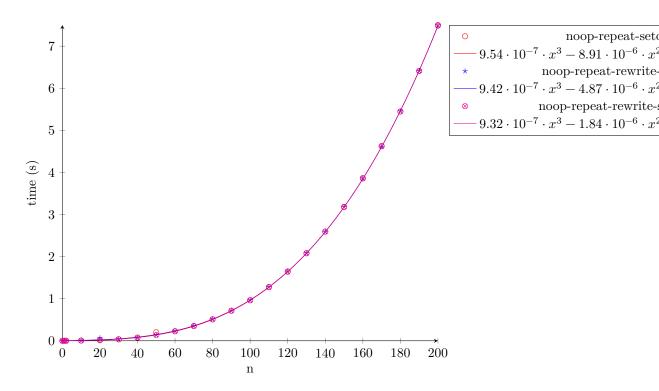
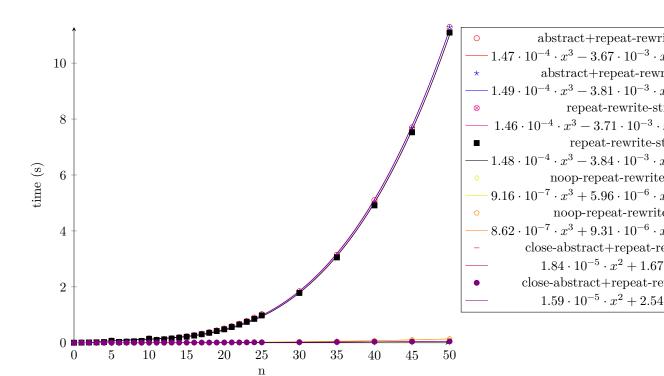
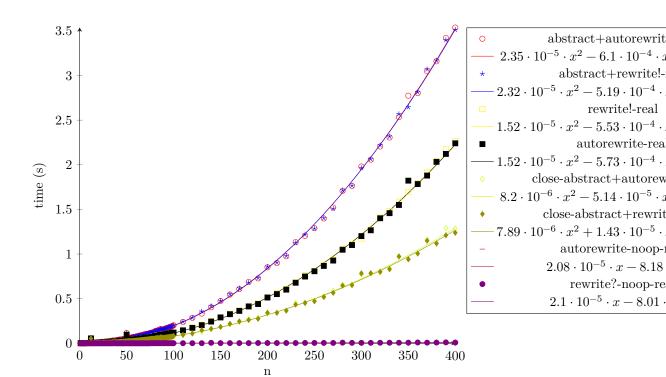


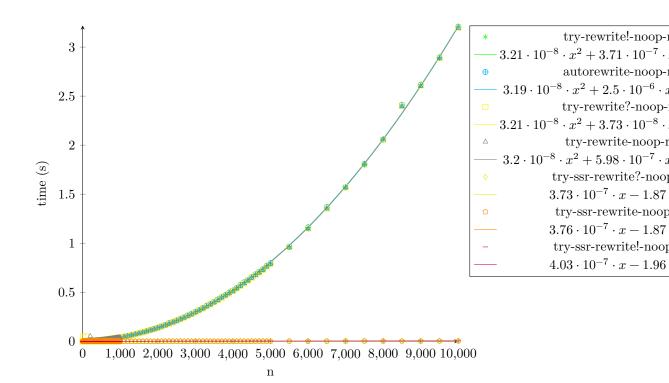
Figure 4: timing-repeat-setoid-rewrite-under-binders-noop



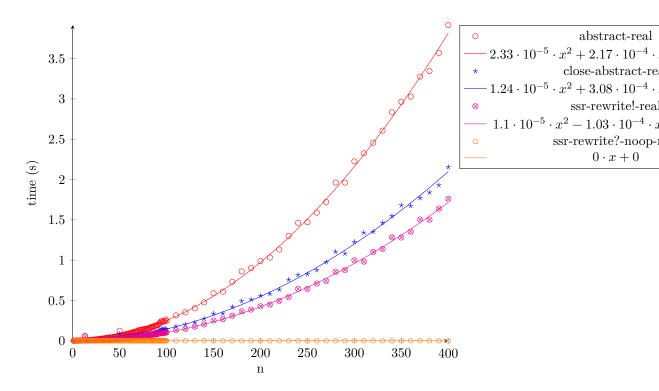
 $Figure \ 5: \ timing-rewrite-strat-under-binders$



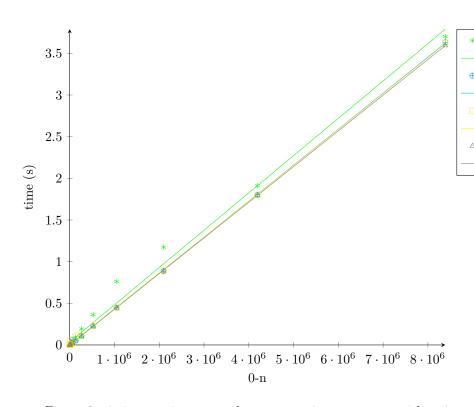
 $Figure \ 6: \ timing-rewrite-repeated-app-autorewrite \\$



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



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



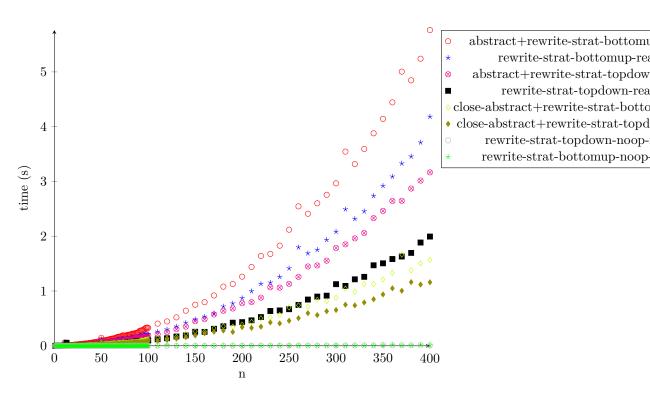
try-ssr-rewrite!-cold-noop-rea

 $\begin{aligned} &4.48 \cdot 10^{-7} \cdot x + 3.47 \cdot 10^{-2} \\ &\text{try-ssr-rewrite-noop-real} \\ &4.32 \cdot 10^{-7} \cdot x - 5.51 \cdot 10^{-4} \end{aligned}$

try-ssr-rewrite!-noop-real $4.3\cdot 10^{-7}\cdot x + 4.04\cdot 10^{-3}$

try-ssr-rewrite?-noop-real $4.28\cdot 10^{-7}\cdot x - 3.34\cdot 10^{-4}$

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

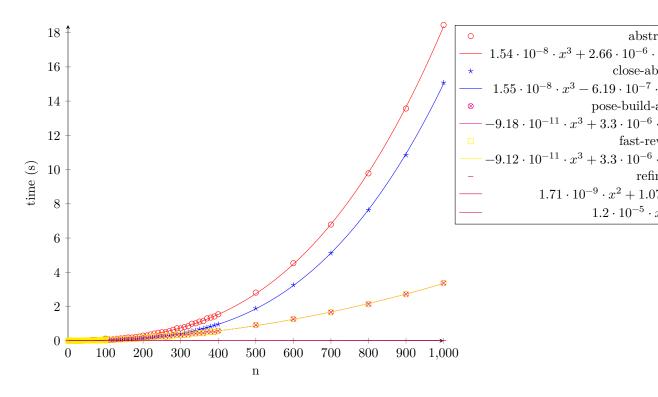


rewrite-strat-bottomup-rea

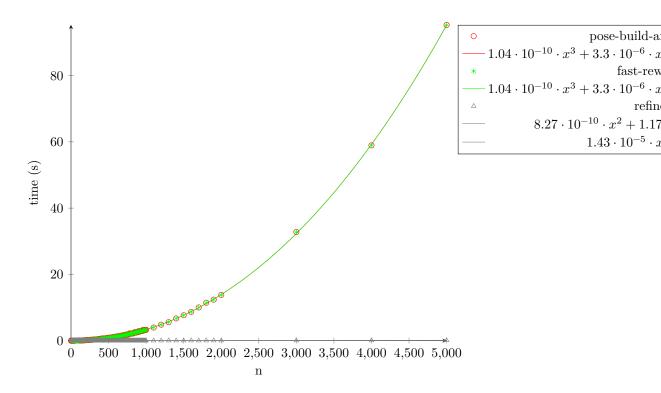
abstract + rewrite - strat - topdowrewrite-strat-topdown-rea

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

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



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



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

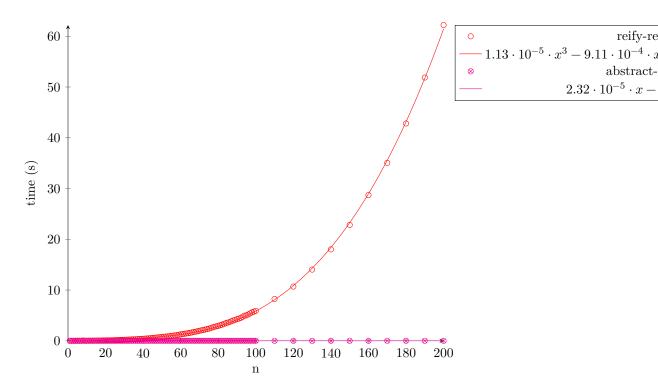


Figure 13: timing-typeclass-reification-let-in-HOAS

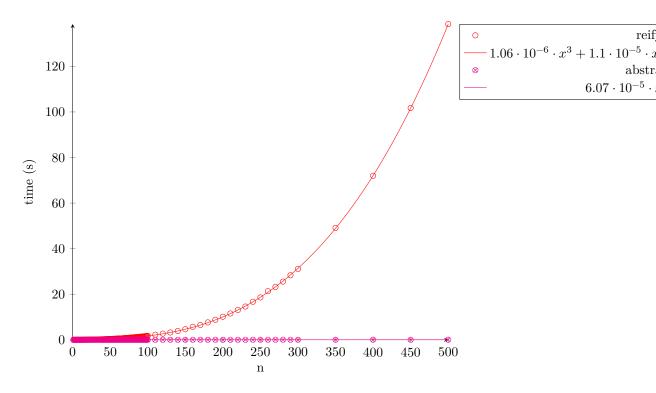


Figure 14: timing-typeclass-reification-let-in-PHOAS