

Figure 1: timing-pattern

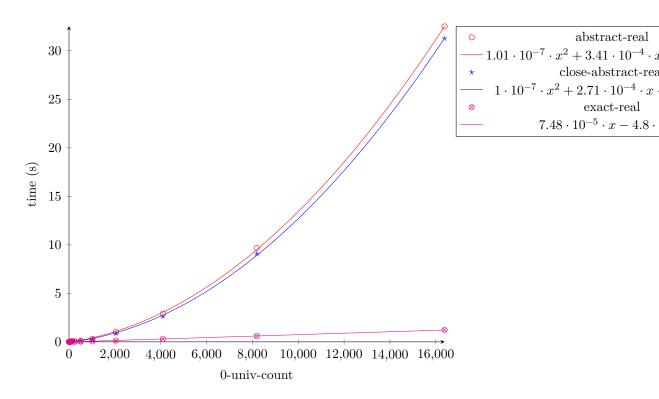
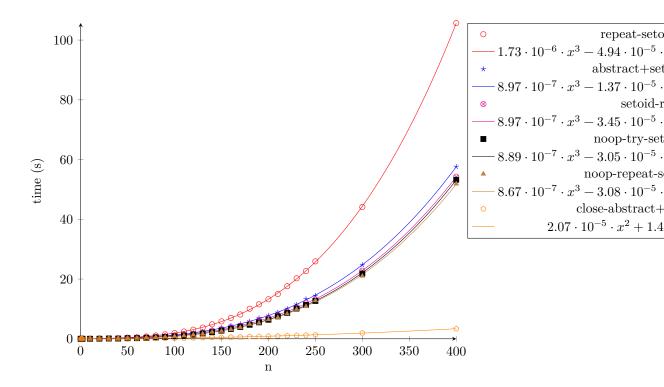
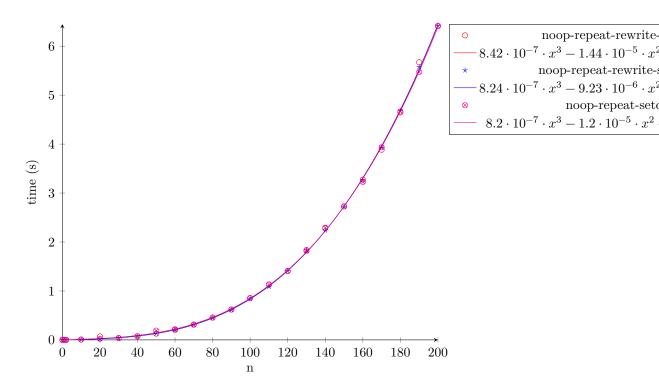


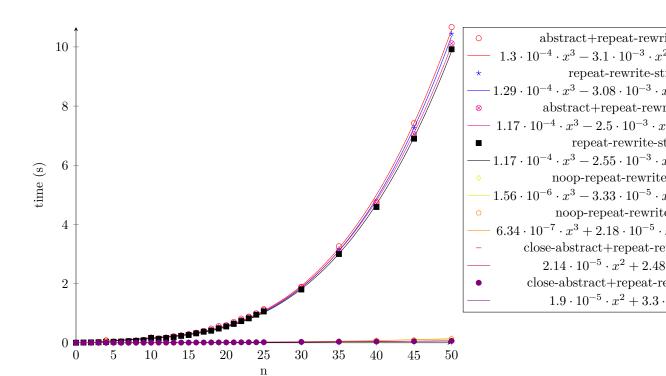
Figure 2: timing-n-polymorphic-universes param-1-n  $\,0\,$ 



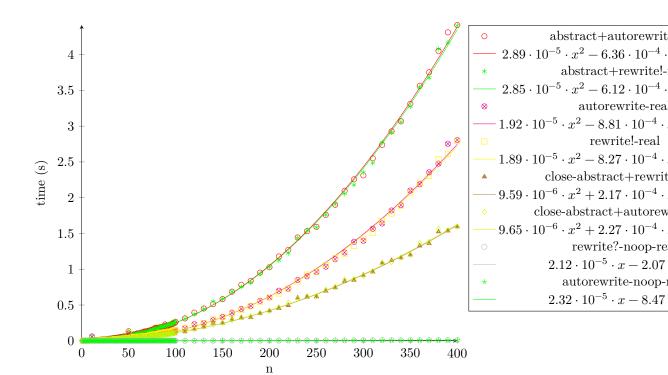
 $Figure \ 3: \ timing-repeat-setoid-rewrite-under-binders$ 



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



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



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

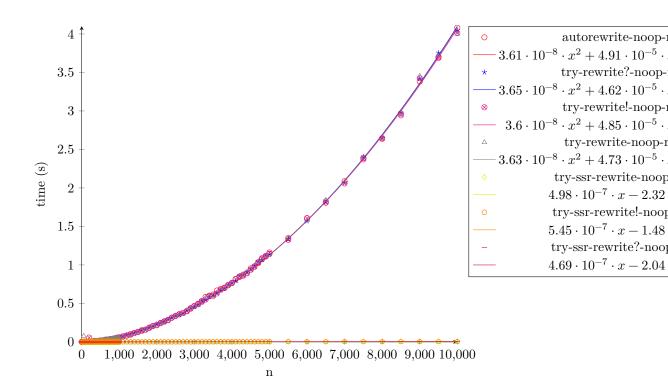


Figure 7: timing-rewrite-repeated-app-autorewrite-noop

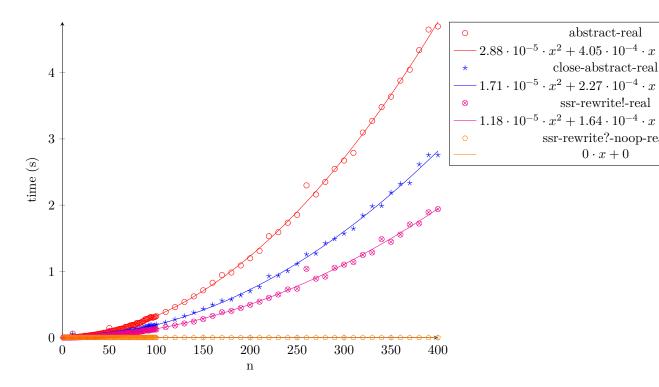
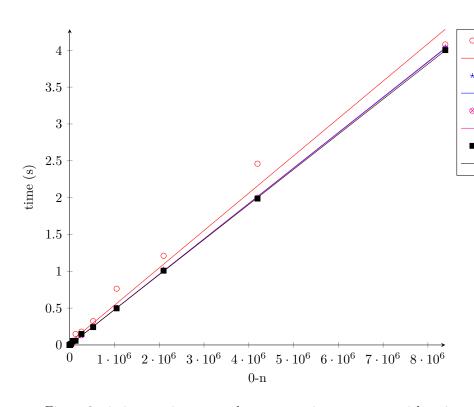


Figure 8: timing-rewrite-repeated-app-ssrrewrite



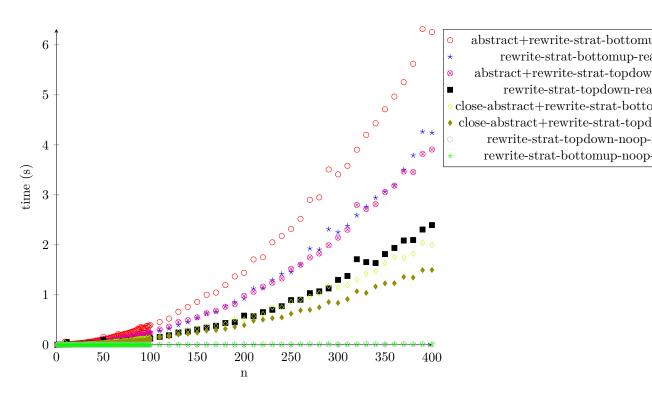
try-ssr-rewrite!-cold-noop-rea  $5.07 \cdot 10^{-7} \cdot x + 3.25 \cdot 10^{-2}$ try-ssr-rewrite-noop-real

 $\begin{aligned} 4.81 \cdot 10^{-7} \cdot x - 1.57 \cdot 10^{-3} \\ \text{try-ssr-rewrite?-noop-real} \end{aligned}$ 

 $\begin{array}{l} 4.79 \cdot 10^{-7} \cdot x - 3.3 \cdot 10^{-4} \\ \text{try-ssr-rewrite!-noop-real} \end{array}$ 

 $4.76\cdot 10^{-7}\cdot x + 1.41\cdot 10^{-3}$ 

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

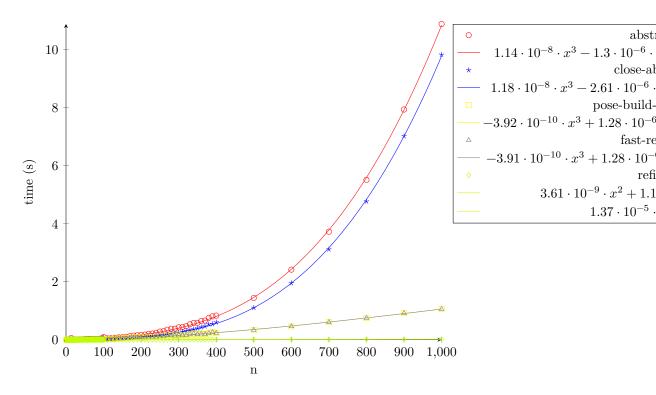


rewrite-strat-bottomup-rea abstract + rewrite - strat - topdowrewrite-strat-topdown-rea

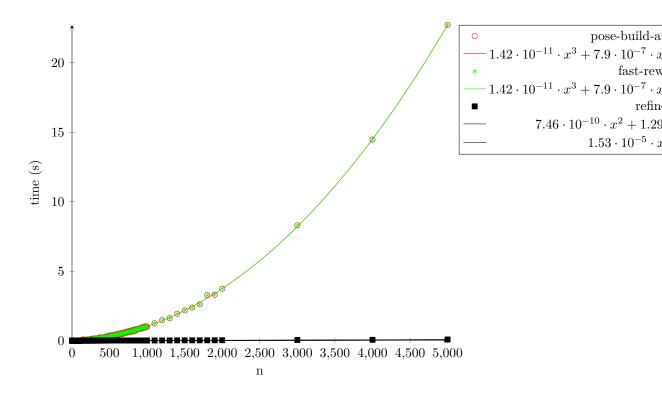
rewrite-strat-topdown-noop-

rewrite-strat-bottomup-noop-

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



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



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

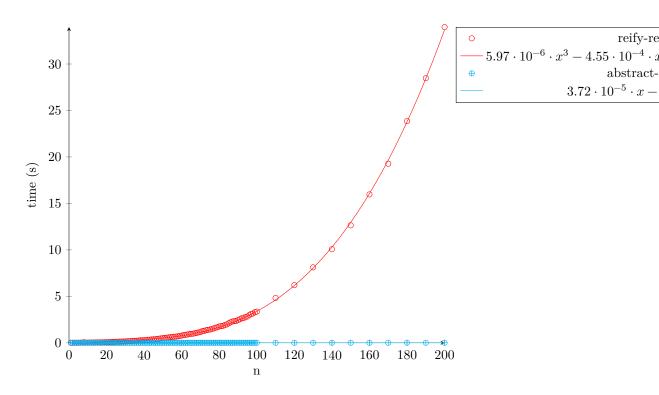


Figure 13: timing-typeclass-reification-let-in-HOAS

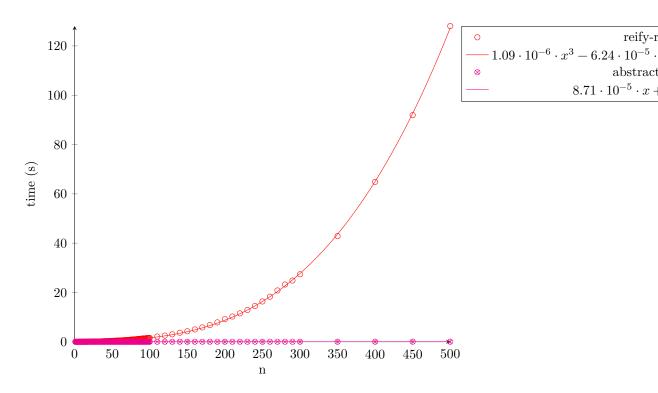


Figure 14: timing-typeclass-reification-let-in-PHOAS

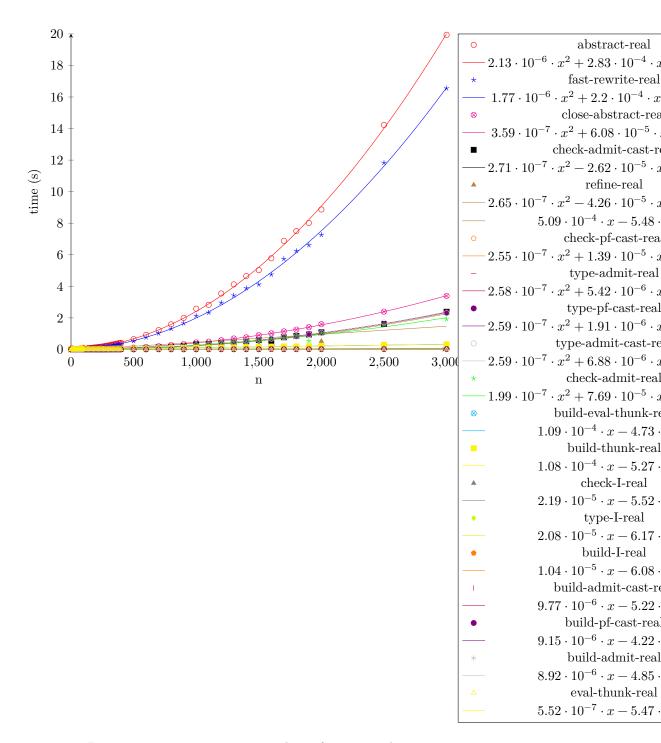


Figure 15: timing-rewrite-repeated-app-fast-rewrite-ltac2