

Figure 1: timing-pattern

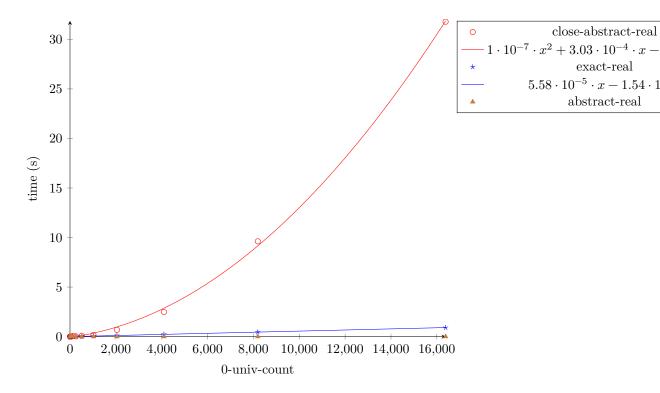


Figure 2: timing-n-polymorphic-universes param-1-n  $\,0\,$ 

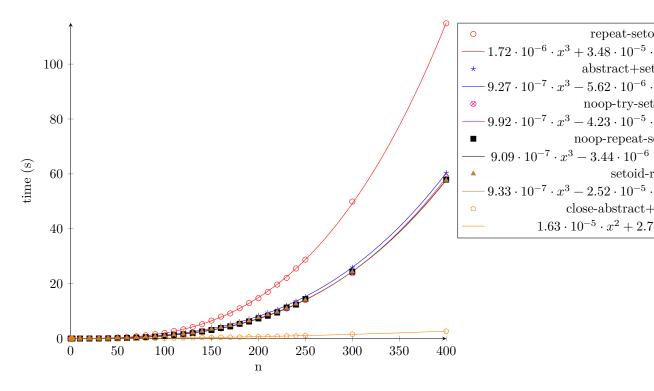


Figure 3: timing-repeat-setoid-rewrite-under-binders

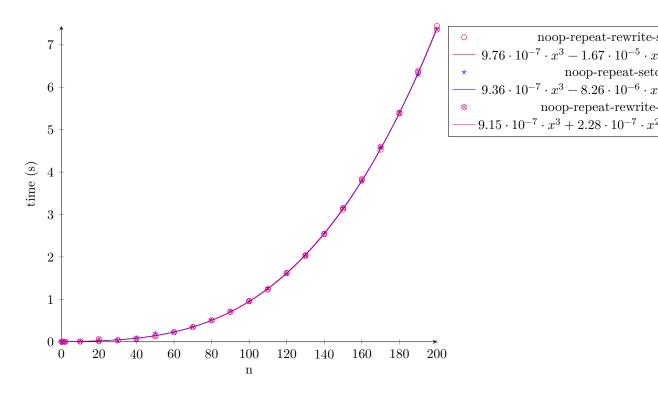
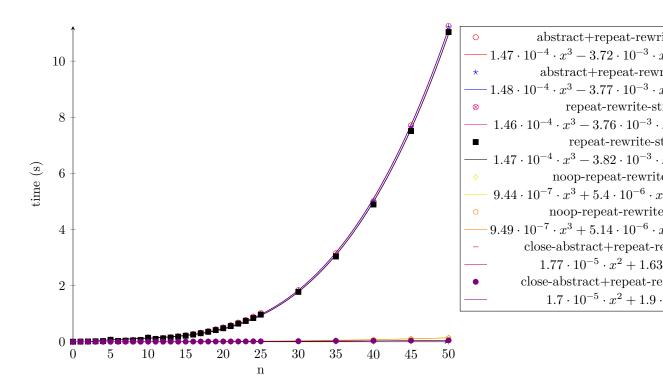
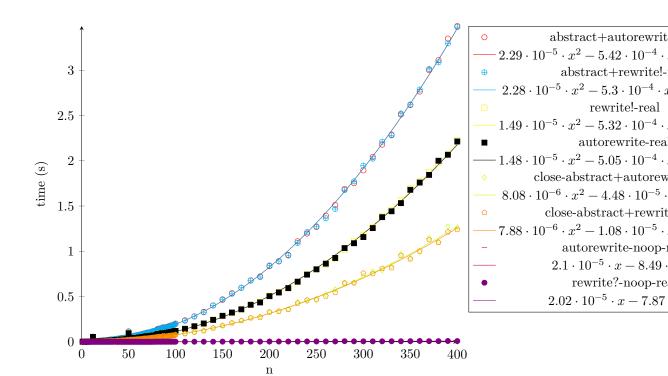


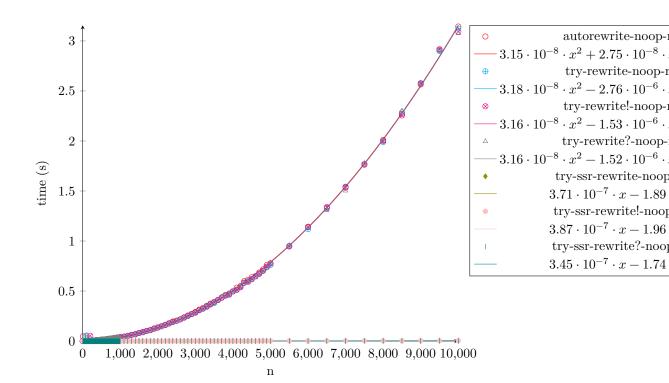
Figure 4: timing-repeat-setoid-rewrite-under-binders-noop



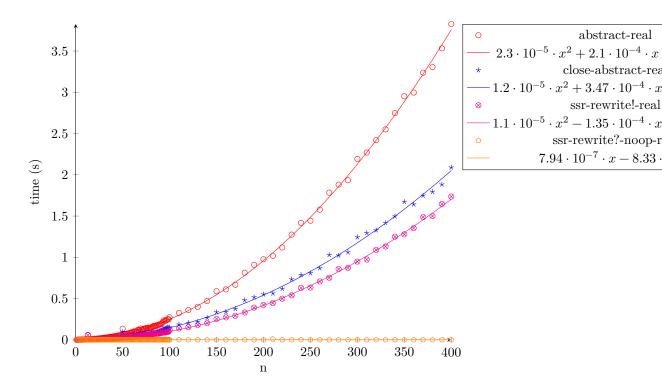
 $Figure\ 5:\ timing-rewrite-strat-under-binders$ 



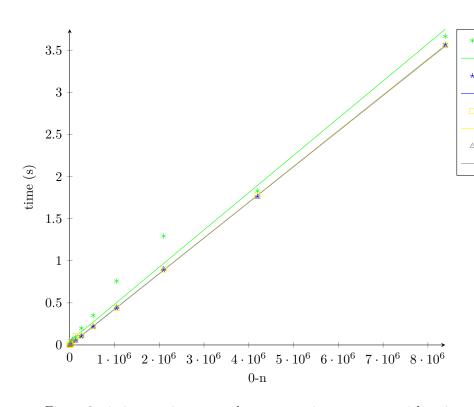
 $Figure \ 6: \ timing-rewrite-repeated-app-autorewrite \\$ 



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



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



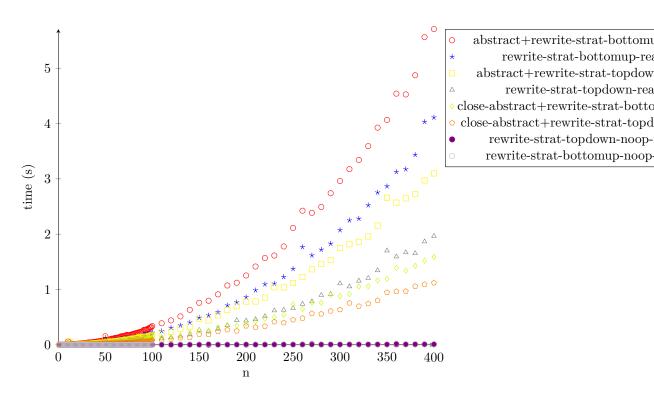
try-ssr-rewrite!-cold-noop-rea

 $\begin{array}{l} 4.42 \cdot 10^{-7} \cdot x + 4.08 \cdot 10^{-2} \\ \text{try-ssr-rewrite?-noop-real} \\ 4.24 \cdot 10^{-7} \cdot x - 1.42 \cdot 10^{-3} \end{array}$ 

try-ssr-rewrite!-noop-real  $4.24\cdot 10^{-7}\cdot x + 2.03\cdot 10^{-3}$ 

try-ssr-rewrite-noop-real  $4.23 \cdot 10^{-7} \cdot x + 1.06 \cdot 10^{-3}$ 

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

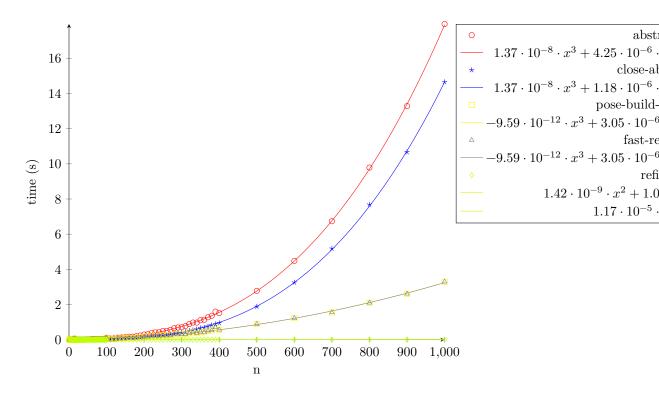


rewrite-strat-bottomup-rea

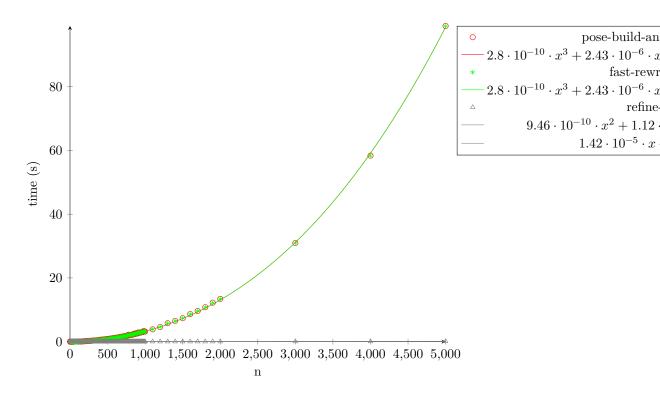
abstract + rewrite - strat - topdowrewrite-strat-topdown-rea

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

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



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



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

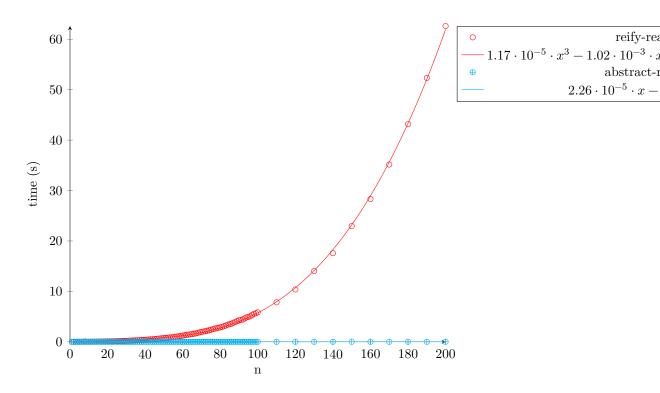


Figure 13: timing-typeclass-reification-let-in-HOAS

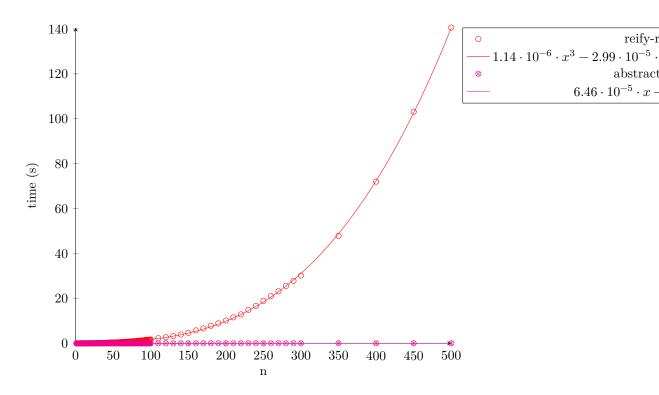


Figure 14: timing-typeclass-reification-let-in-PHOAS