

Figure 1: timing-pattern

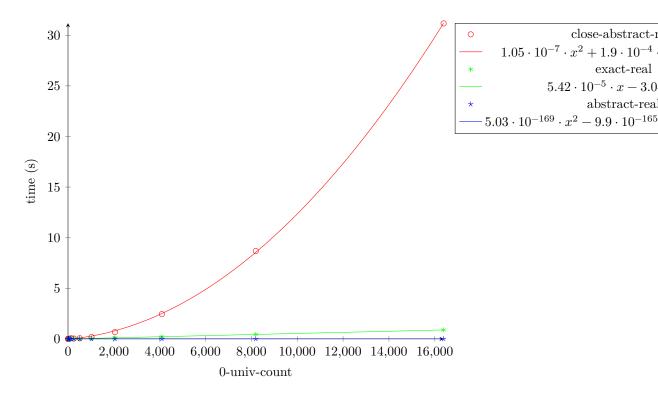
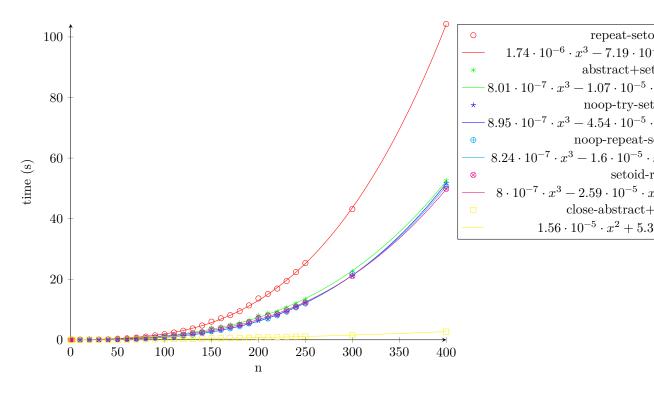


Figure 2: timing-n-polymorphic-universes param-1-n $\,0\,$



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

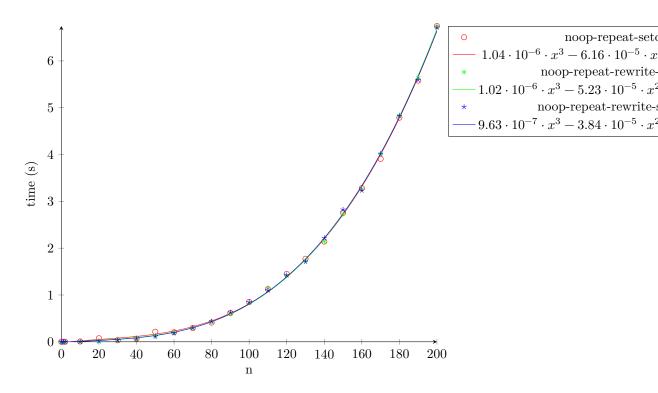
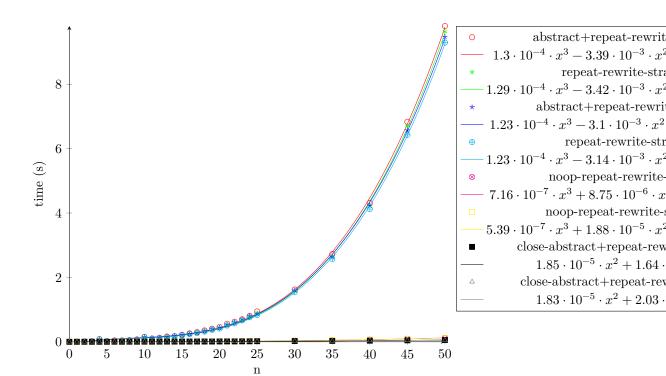
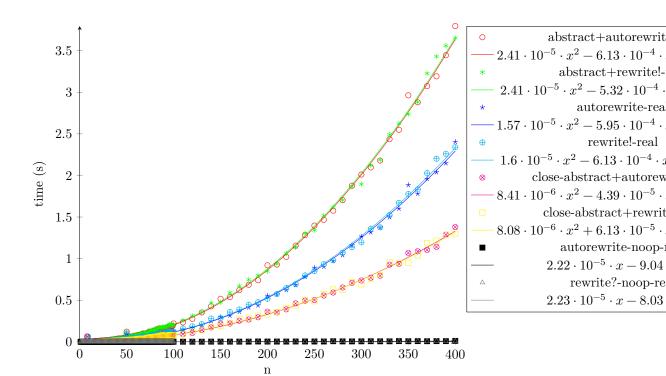


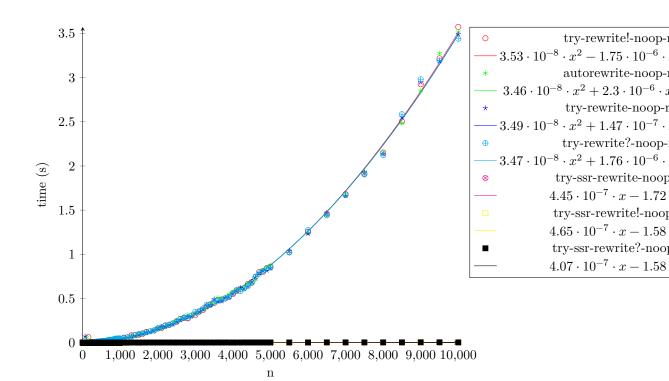
Figure 4: timing-repeat-setoid-rewrite-under-binders-noop



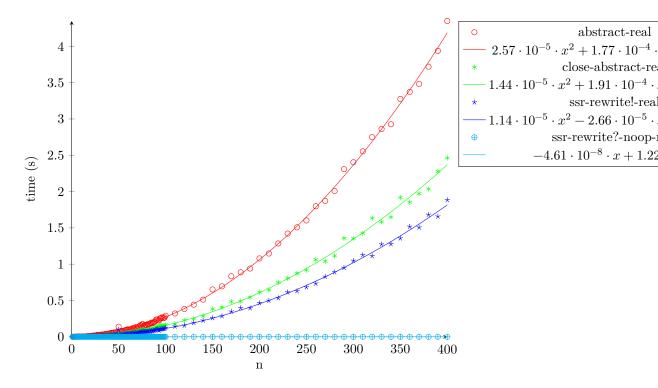
 $Figure\ 5:\ timing-rewrite-strat-under-binders$



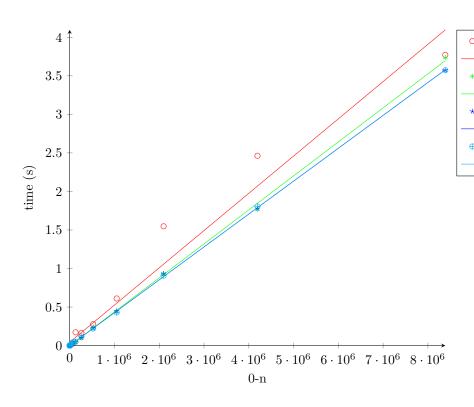
 $Figure \ 6: \ timing-rewrite-repeated-app-autorewrite \\$



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



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



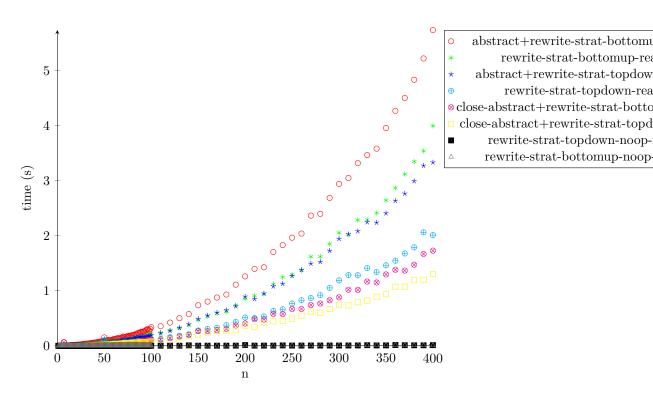
try-ssr-rewrite!-cold-noop-rea $4.83 \cdot 10^{-7} \cdot x + 4.29 \cdot 10^{-2}$ try-ssr-rewrite?-noop-real

 $\begin{array}{l} 4.41\cdot 10^{-7}\cdot x - 4.07\cdot 10^{-3}\\ \text{try-ssr-rewrite-noop-real} \end{array}$

 $\begin{array}{l} 4.27 \cdot 10^{-7} \cdot x + 1.53 \cdot 10^{-5} \\ \text{try-ssr-rewrite!-noop-real} \end{array}$

 $4.27 \cdot 10^{-7} \cdot x + 9.49 \cdot 10^{-4}$

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

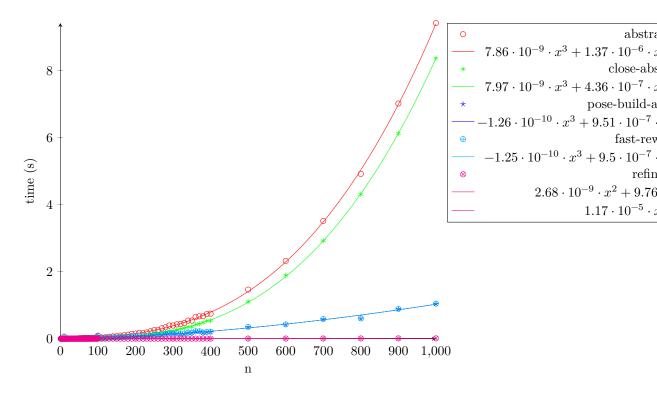


rewrite-strat-bottomup-real

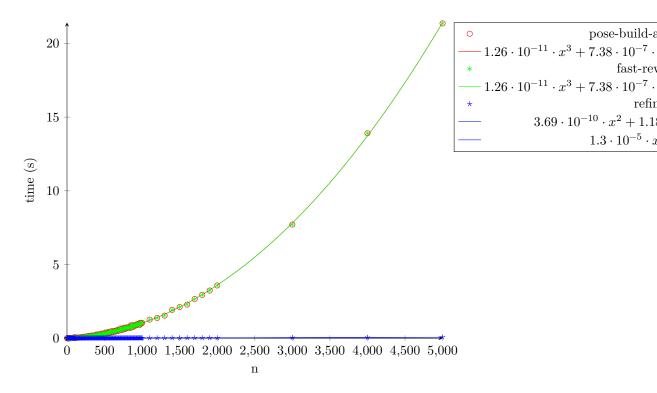
rewrite-strat-topdown-rea

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

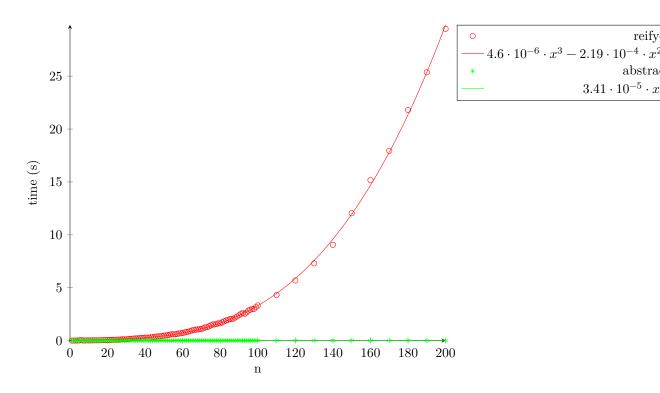
 $Figure\ 10:\ timing-rewrite-repeated-app-rewrite-strat$



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



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



 ${\bf Figure~13:~timing-type class-reification-let-in-HOAS}$

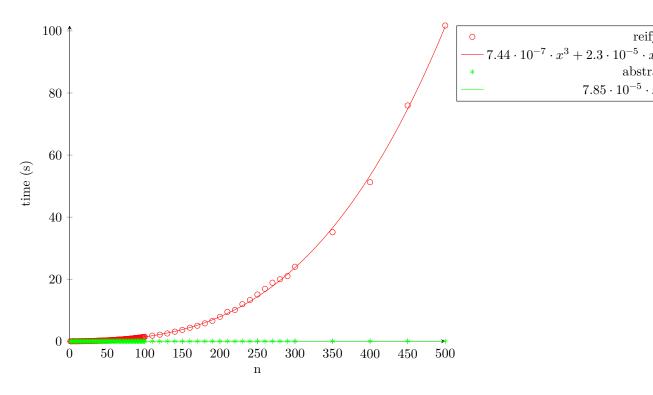


Figure 14: timing-typeclass-reification-let-in-PHOAS

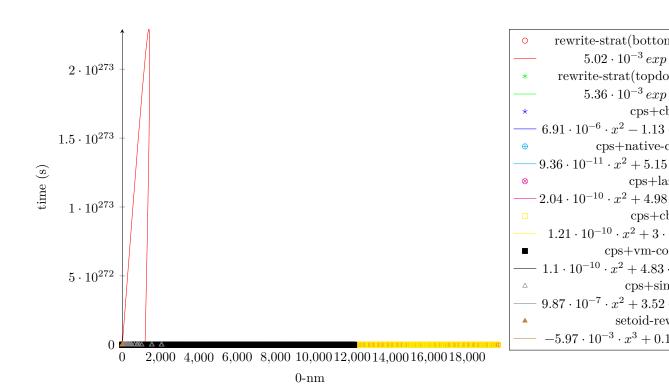


Figure 15: timing-rewrite-lift-lets-map param-1-n 1, param-2-m 1