

Figure 1: timing-pattern

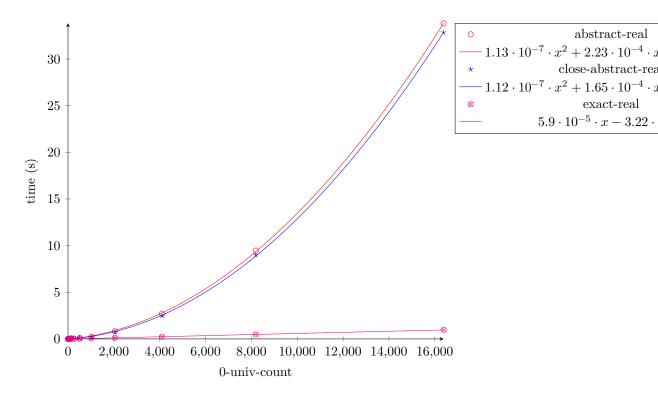
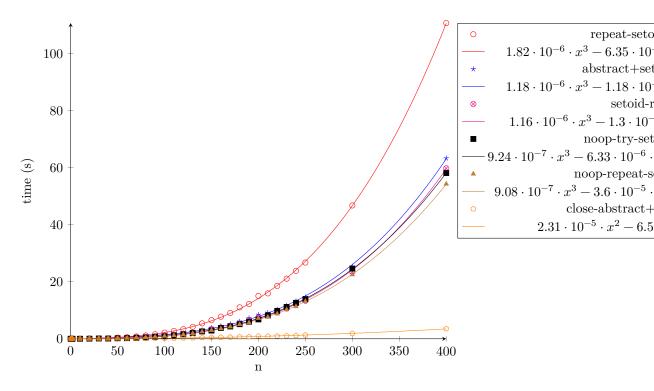


Figure 2: timing-n-polymorphic-universes param-1-n $\,0\,$



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

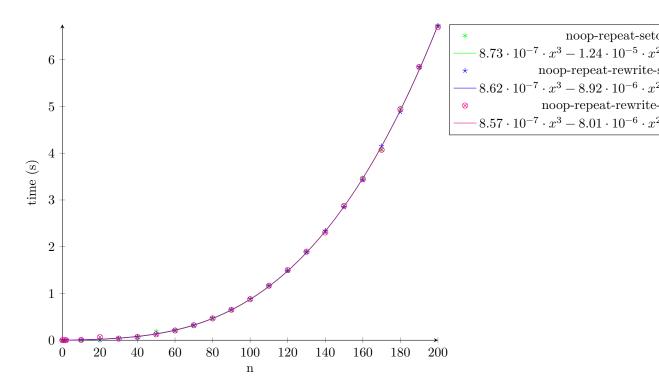


Figure 4: timing-repeat-setoid-rewrite-under-binders-noop

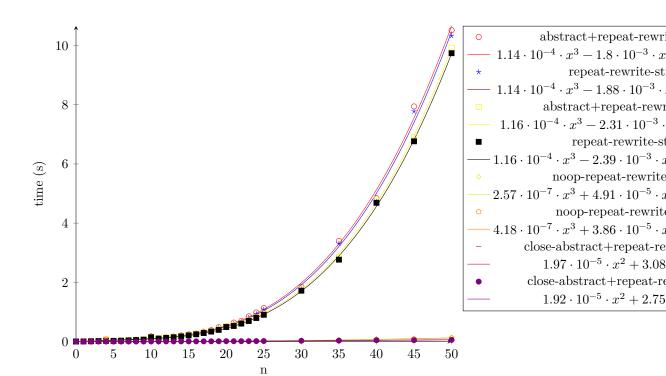
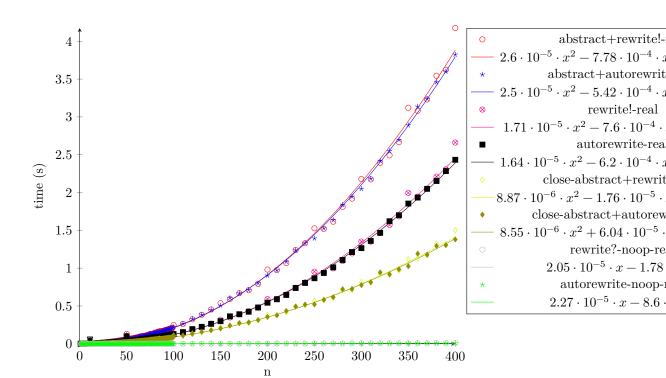
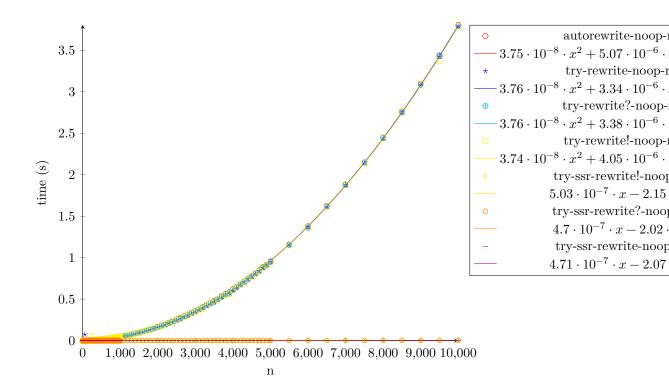


Figure 5: timing-rewrite-strat-under-binders



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



 $Figure~7:~timing\mbox{-rewrite-repeated-app-autorewrite-noop}$

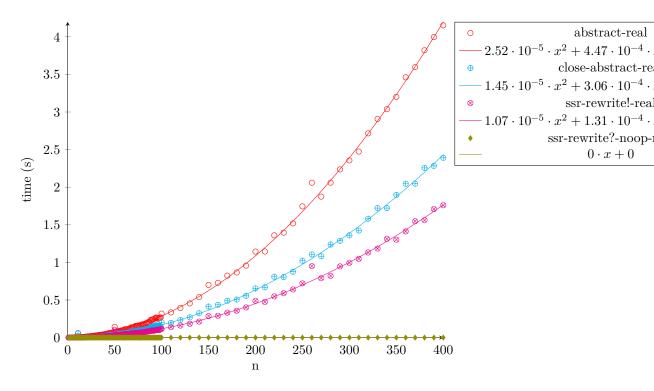
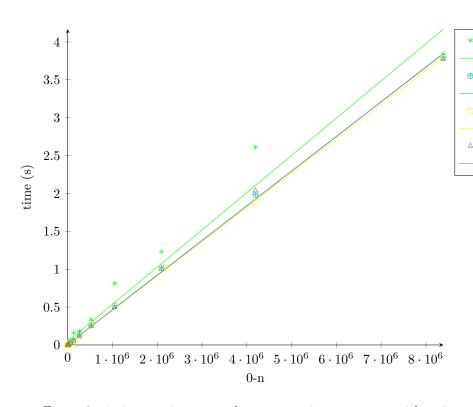


Figure 8: timing-rewrite-repeated-app-ssrrewrite



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

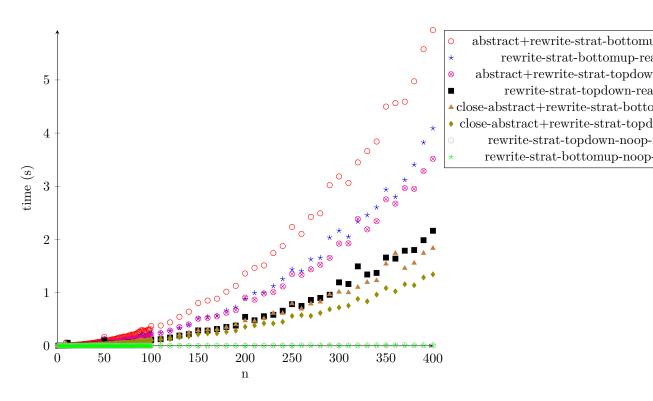
 $\begin{array}{l} 4.92 \cdot 10^{-7} \cdot x + 4.44 \cdot 10^{-2} \\ \text{try-ssr-rewrite!-noop-real} \end{array}$

 $\begin{array}{l} 4.58 \cdot 10^{-7} \cdot x + 8.24 \cdot 10^{-3} \\ \text{try-ssr-rewrite?-noop-real} \end{array}$

 $\begin{array}{l} 4.53 \cdot 10^{-7} \cdot x + 4.81 \cdot 10^{-3} \\ \text{try-ssr-rewrite-noop-real} \end{array}$

 $4.57 \cdot 10^{-7} \cdot x + 4.93 \cdot 10^{-3}$

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

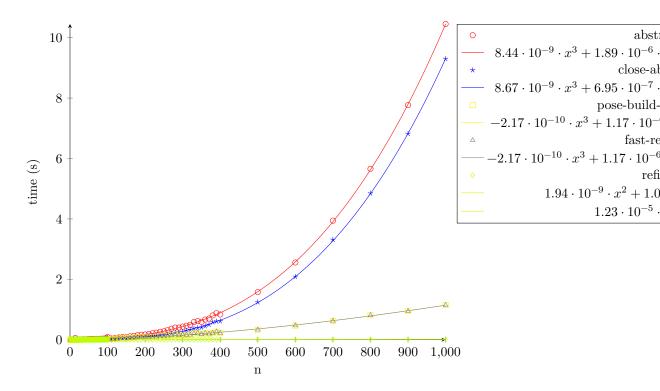


rewrite-strat-bottomup-rea abstract + rewrite - strat - topdow

rewrite-strat-topdown-rea

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

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



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

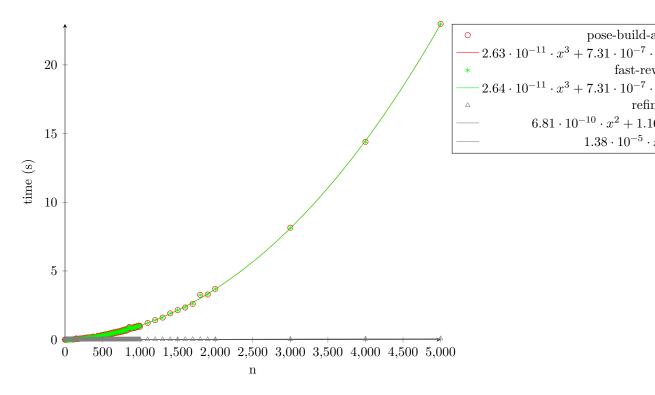
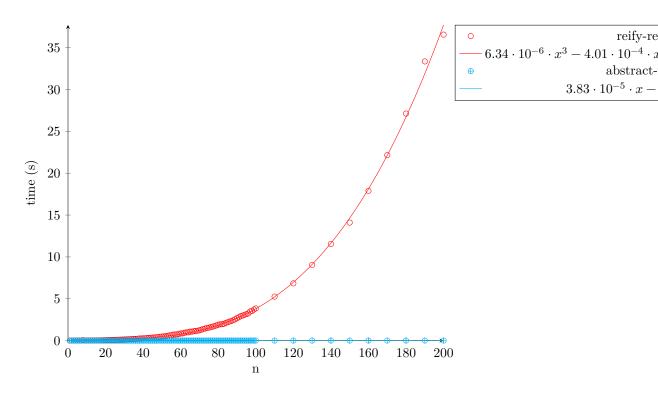


Figure 12: timing-rewrite-repeated-app-fast-rewrite-no-abstract



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

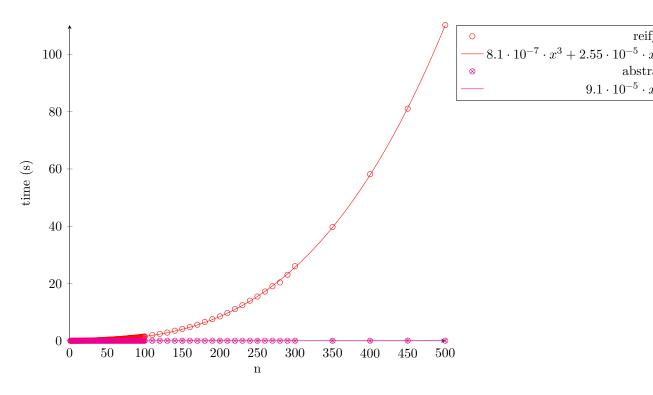


Figure 14: timing-typeclass-reification-let-in-PHOAS

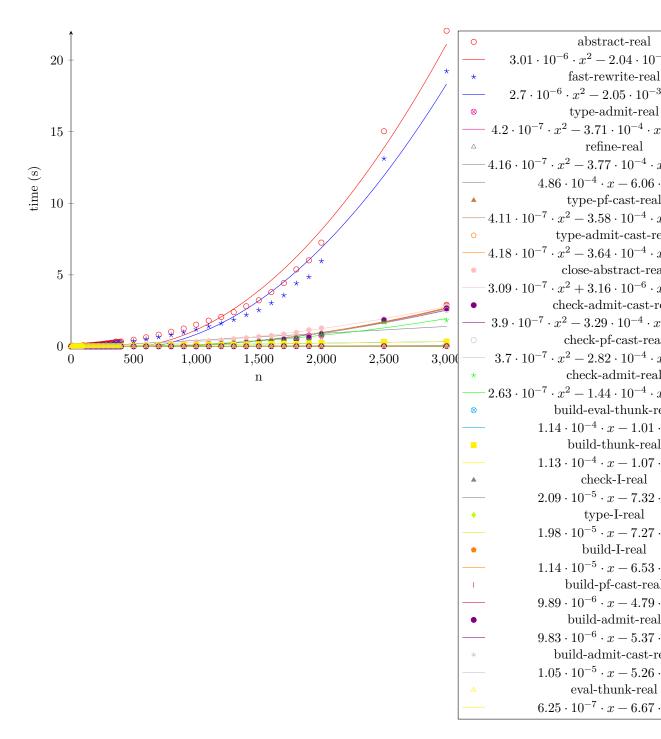


Figure 15: timing-rewrite-repeated-app-fast-rewrite-ltac2