

Figure 1: timing-pattern

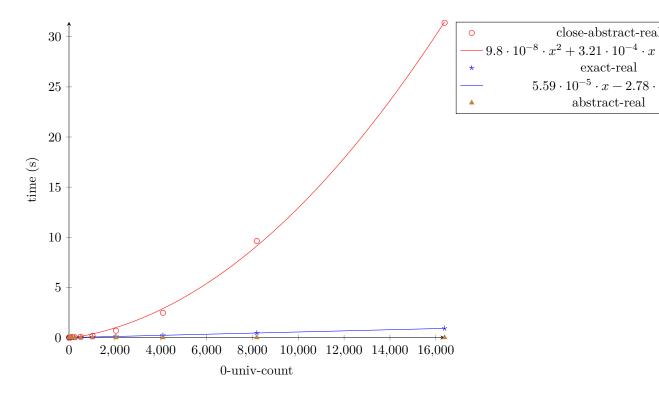


Figure 2: timing-n-polymorphic-universes param-1-n $\,0\,$

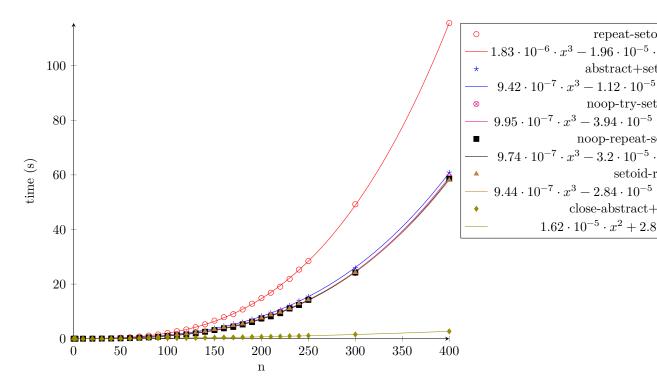


Figure 3: timing-repeat-setoid-rewrite-under-binders

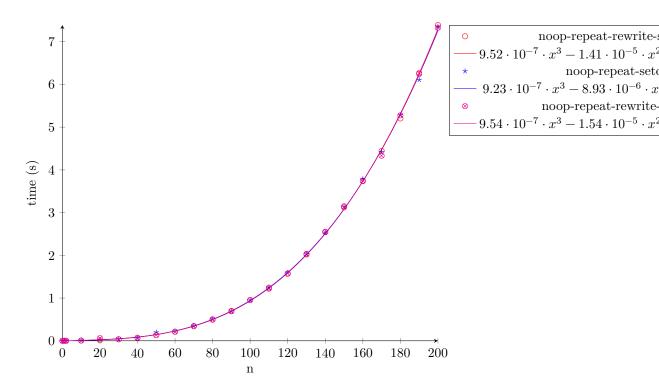
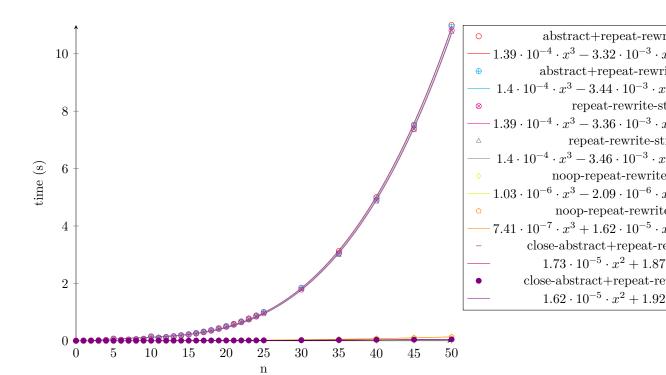


Figure 4: timing-repeat-setoid-rewrite-under-binders-noop



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

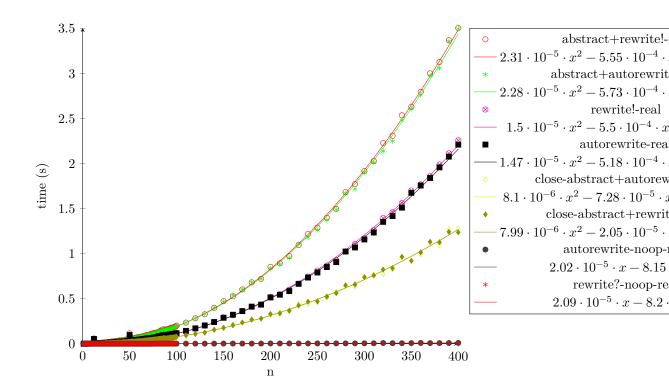


Figure 6: timing-rewrite-repeated-app-autorewrite

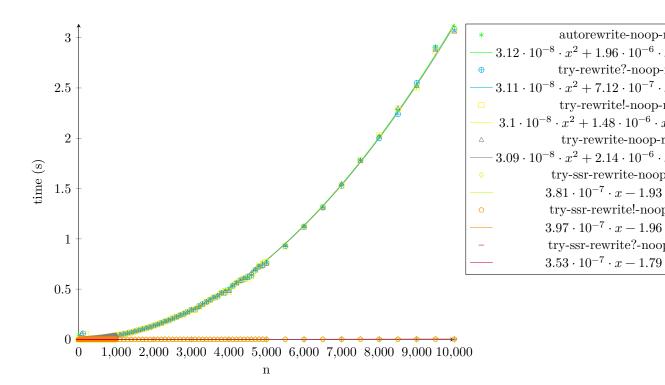
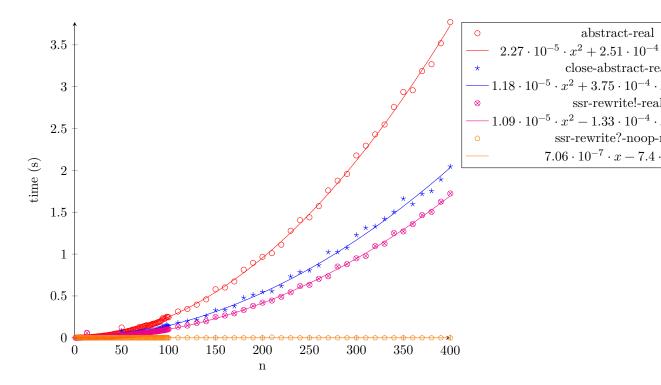
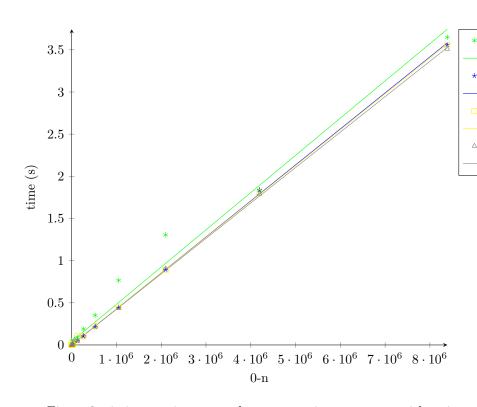


Figure 7: timing-rewrite-repeated-app-autorewrite-noop



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



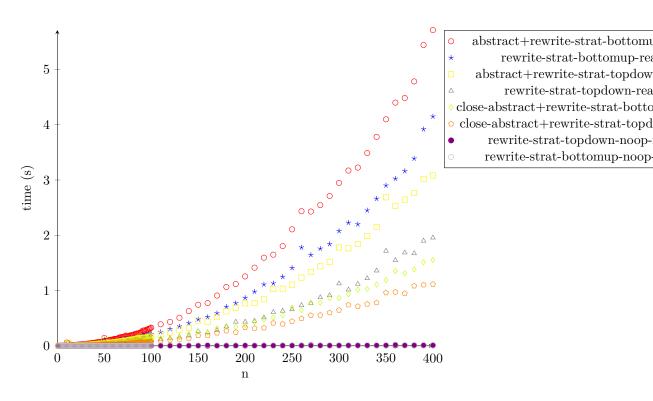
try-ssr-rewrite!-cold-noop-rea

 $\begin{array}{l} 4.41 \cdot 10^{-7} \cdot x + 4.12 \cdot 10^{-2} \\ \text{try-ssr-rewrite?-noop-real} \\ 4.27 \cdot 10^{-7} \cdot x - 7.66 \cdot 10^{-5} \end{array}$

try-ssr-rewrite!-noop-real $4.25\cdot 10^{-7}\cdot x + 2.41\cdot 10^{-3}$

try-ssr-rewrite-noop-real $4.2 \cdot 10^{-7} \cdot x + 2.38 \cdot 10^{-3}$

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

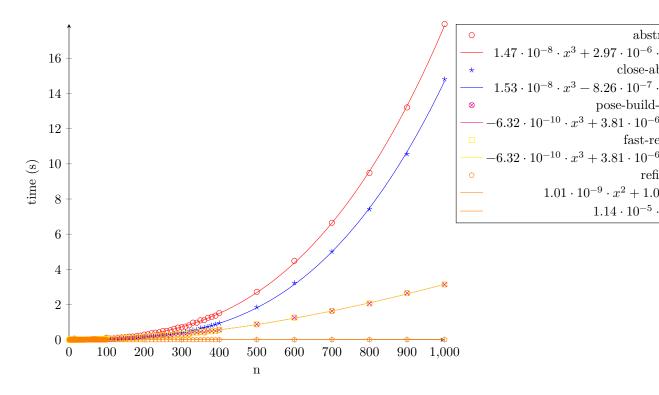


 $abstract + rewrite - strat - bottom \\ u$ rewrite-strat-bottomup-rea

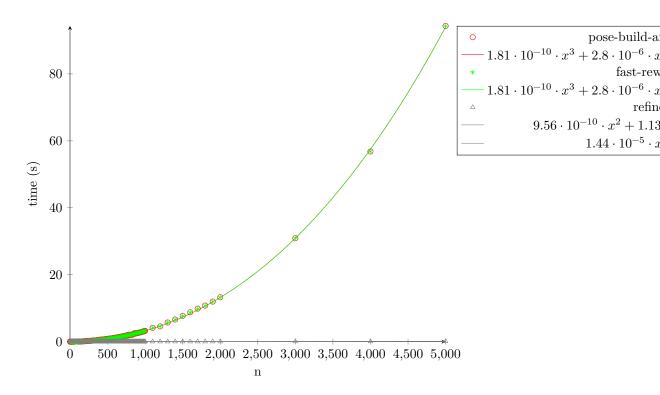
abstract + rewrite - strat - topdowrewrite-strat-topdown-rea

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

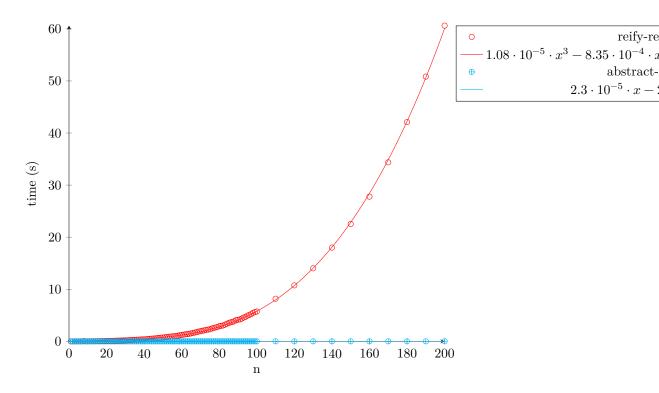
 $Figure~10:~timing\mbox{-rewrite-repeated-app-rewrite-strat}$



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



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



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

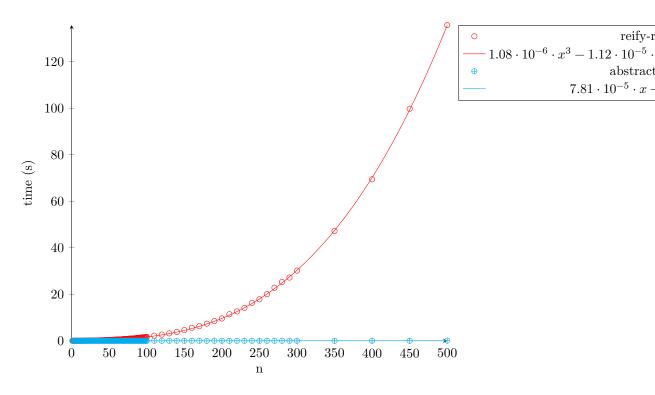


Figure 14: timing-typeclass-reification-let-in-PHOAS