

Figure 1: timing-pattern

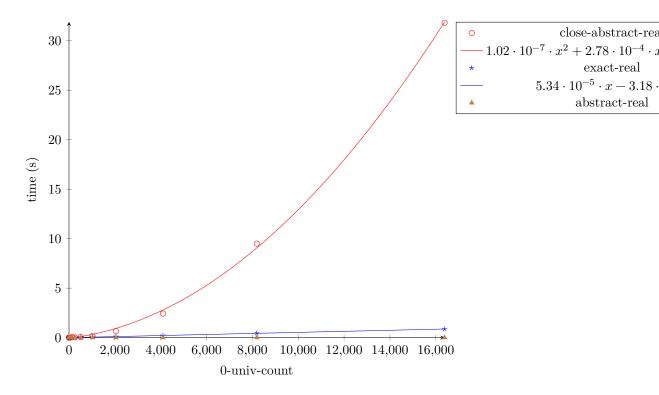


Figure 2: timing-n-polymorphic-universes param-1-n $\,0\,$

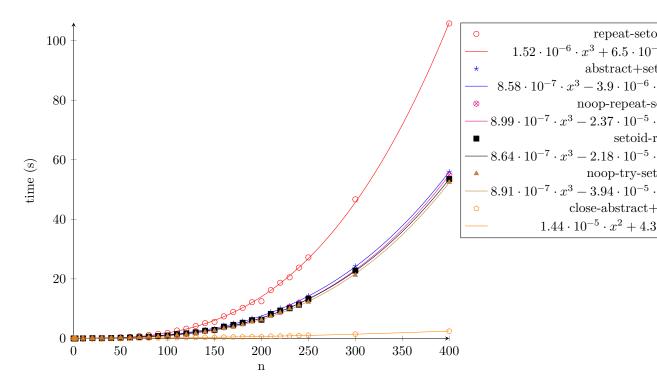


Figure 3: timing-repeat-setoid-rewrite-under-binders

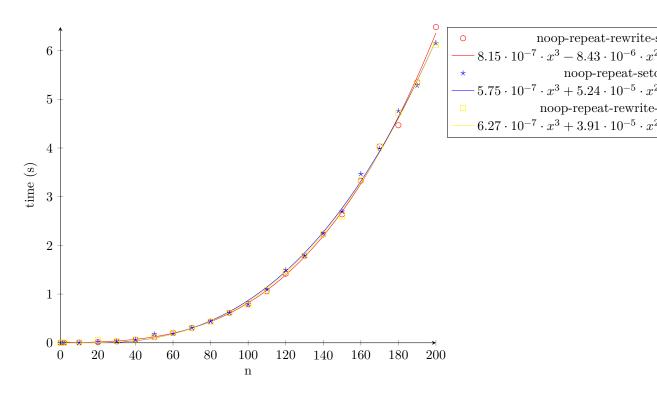
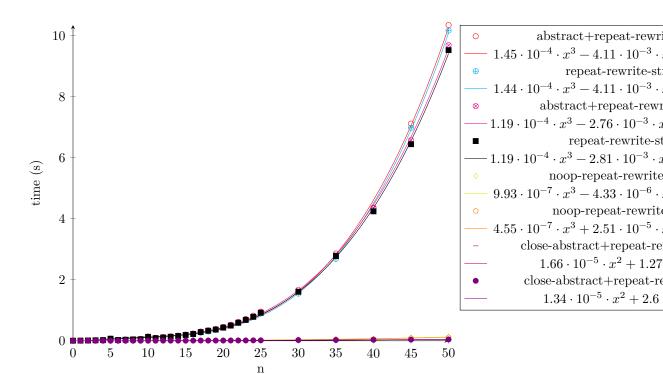


Figure 4: timing-repeat-setoid-rewrite-under-binders-noop



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

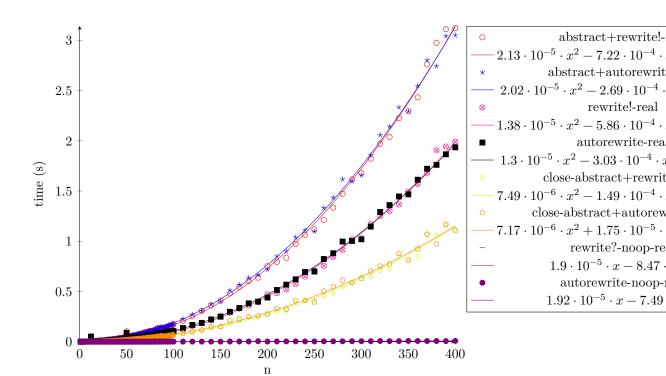


Figure 6: timing-rewrite-repeated-app-autorewrite

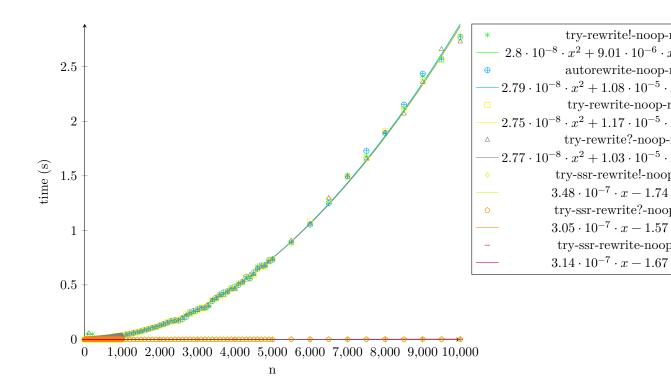


Figure 7: timing-rewrite-repeated-app-autorewrite-noop

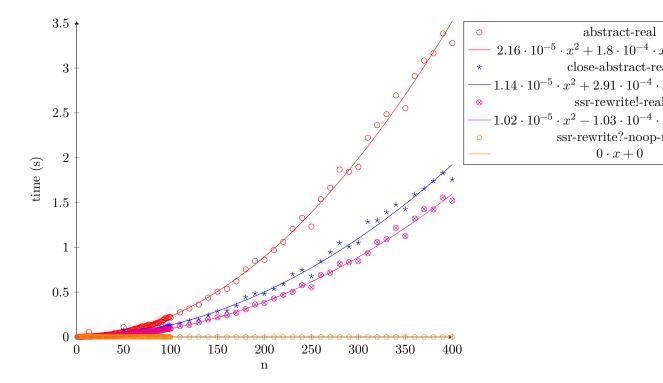
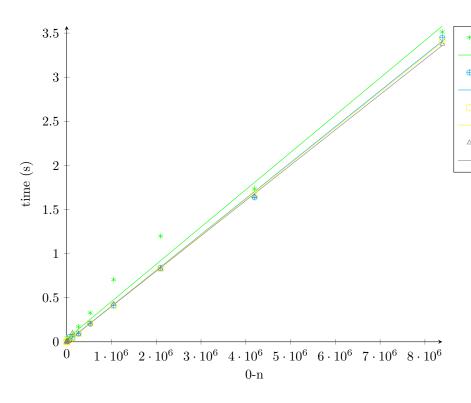


Figure 8: timing-rewrite-repeated-app-ssrrewrite

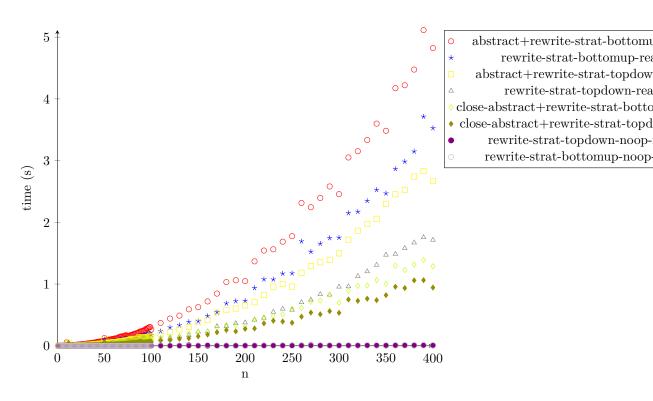


try-ssr-rewrite!-cold-noop-rea $4.23\cdot 10^{-7}\cdot x + 3.4\cdot 10^{-2}$ try-ssr-rewrite-noop-real

 $\begin{array}{l} 4.07\cdot 10^{-7}\cdot x - 3.38\cdot 10^{-3} \\ \text{try-ssr-rewrite?-noop-real} \end{array}$

 $\begin{aligned} &4.05\cdot 10^{-7}\cdot x - 3.51\cdot 10^{-3}\\ &\text{try-ssr-rewrite!-noop-real}\\ &4.01\cdot 10^{-7}\cdot x - 2.45\cdot 10^{-4} \end{aligned}$

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



 $abstract + rewrite - strat - bottom \\ \\$ rewrite-strat-bottomup-realabstract + rewrite - strat - topdowrewrite-strat-topdown-rea

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

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

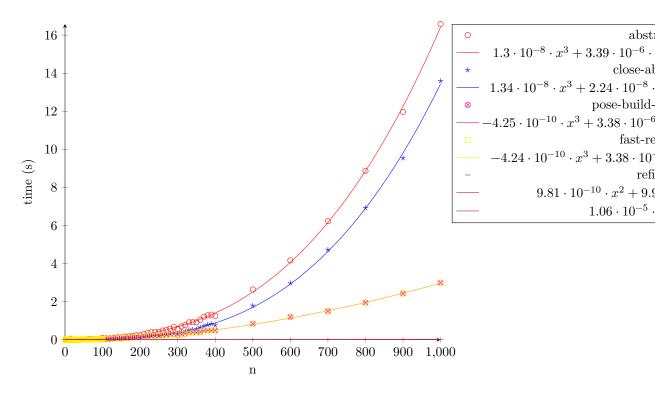
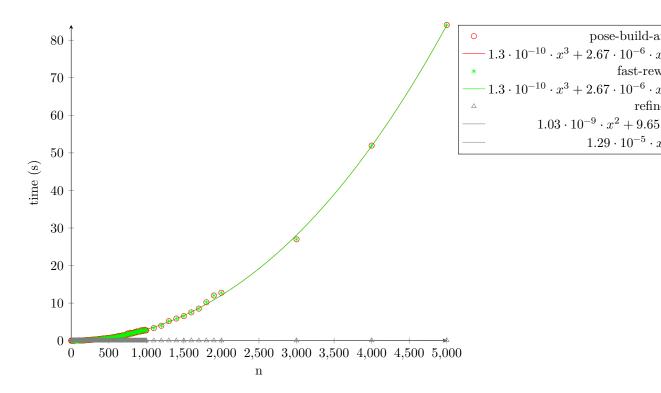


Figure 11: timing-rewrite-repeated-app-fast-rewrite



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

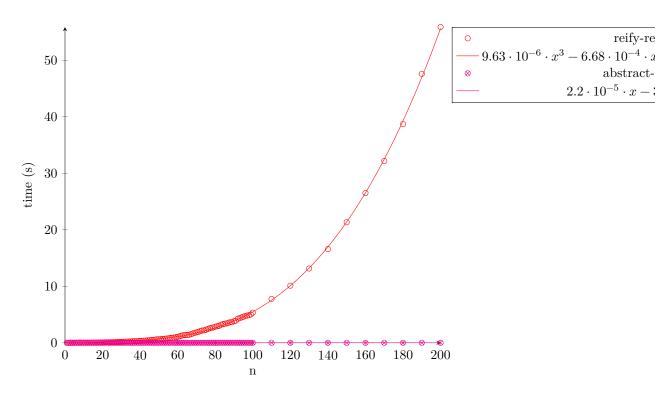
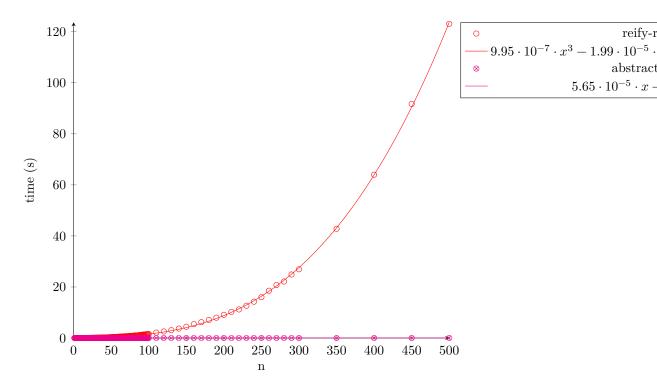


Figure 13: timing-typeclass-reification-let-in-HOAS



 ${\bf Figure~14:~timing-type class-reification-let-in-PHOAS}$