

Figure 1: timing-pattern

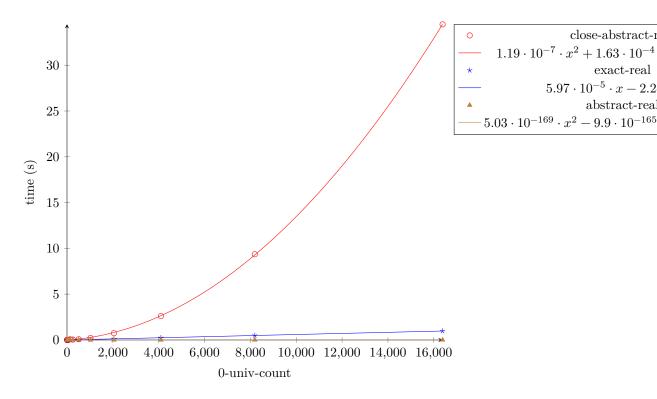
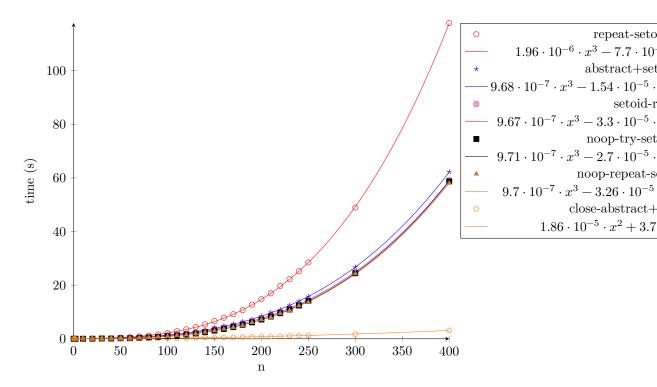


Figure 2: timing-n-polymorphic-universes param-1-n $\,0\,$



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

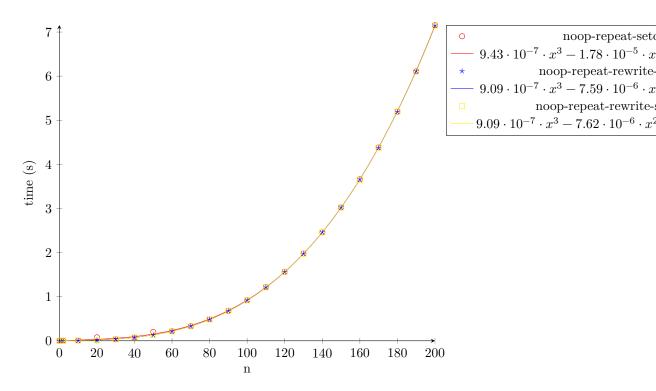


Figure 4: timing-repeat-setoid-rewrite-under-binders-noop

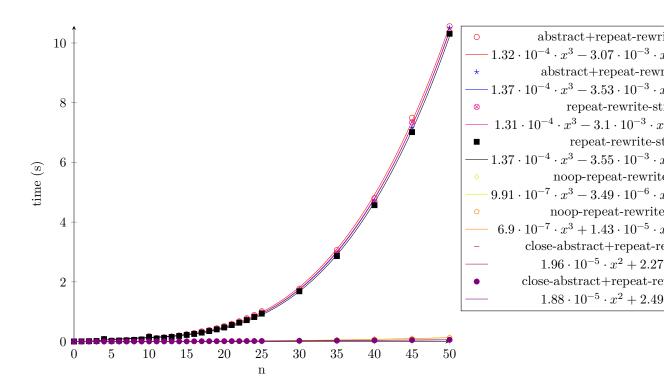
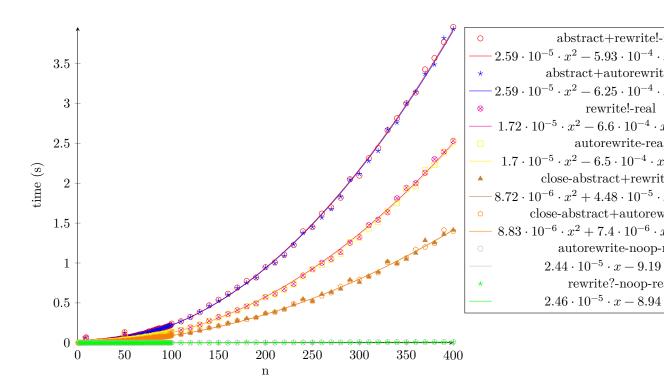
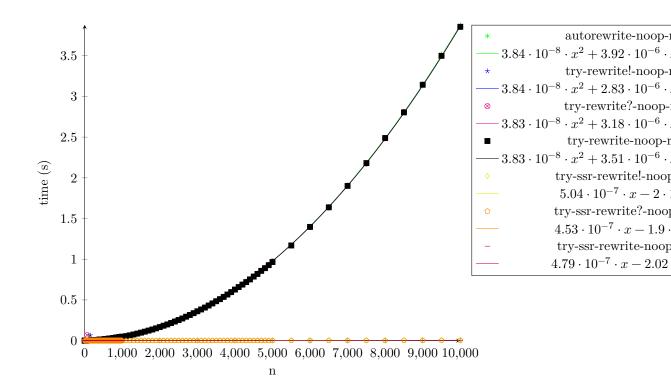


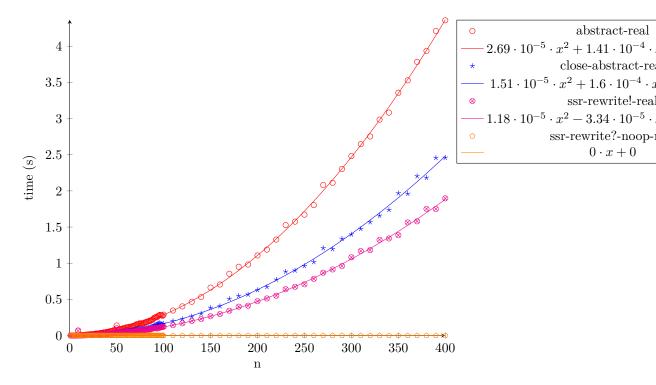
Figure 5: timing-rewrite-strat-under-binders



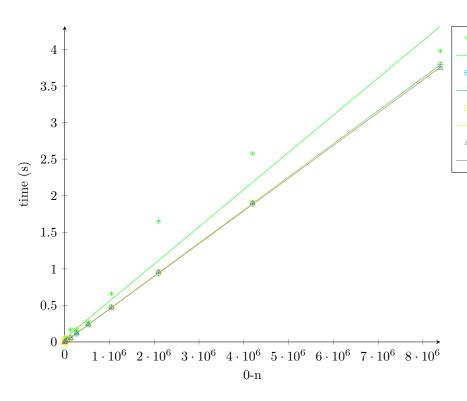
 $Figure \ 6: \ timing-rewrite-repeated-app-autorewrite \\$



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



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



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

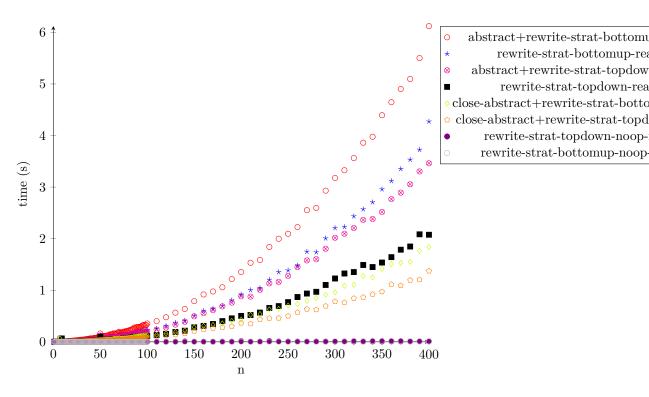
 $5.09 \cdot 10^{-7} \cdot x + 4.79 \cdot 10^{-2}$ try-ssr-rewrite?-noop-real

 $\begin{array}{l} 4.52\cdot 10^{-7}\cdot x - 7.2\cdot 10^{-4}\\ \text{try-ssr-rewrite!-noop-real} \end{array}$

 $\begin{array}{l} 4.5\cdot 10^{-7}\cdot x + 2.69\cdot 10^{-3} \\ \text{try-ssr-rewrite-noop-real} \end{array}$

 $4.48\cdot 10^{-7}\cdot x + 1.05\cdot 10^{-3}$

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

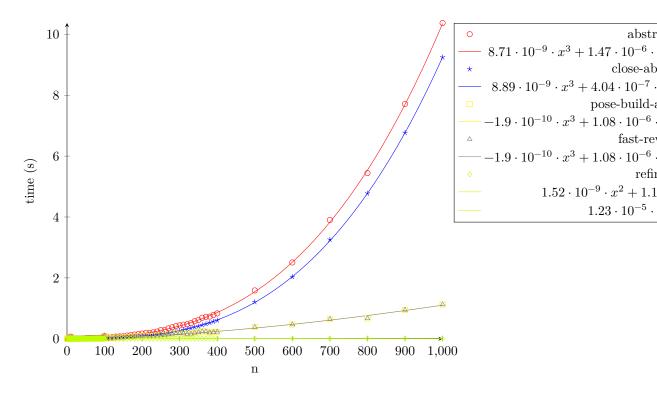


 $abstract + rewrite - strat - bottom \\ \\$ rewrite-strat-bottomup-realabstract + rewrite - strat - topdow

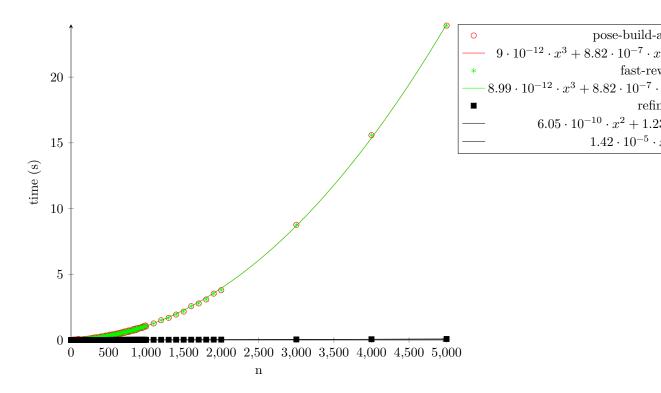
rewrite-strat-topdown-rea

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

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



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



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

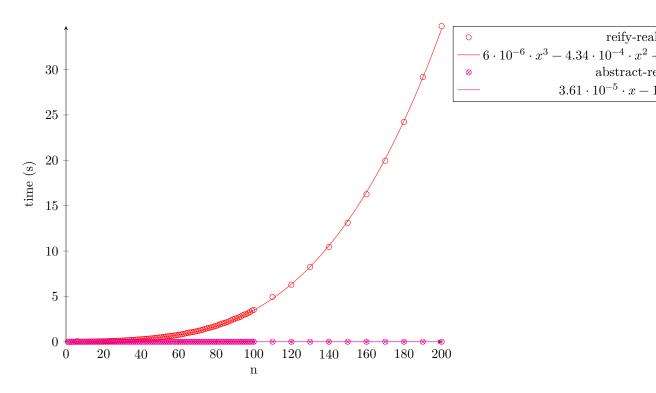


Figure 13: timing-typeclass-reification-let-in-HOAS

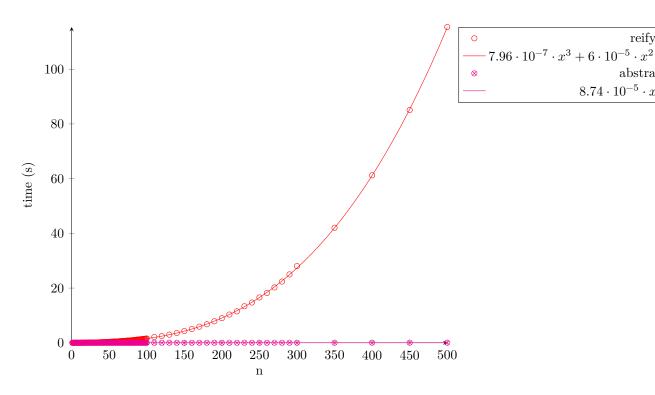


Figure 14: timing-typeclass-reification-let-in-PHOAS