

Figure 1: timing-pattern

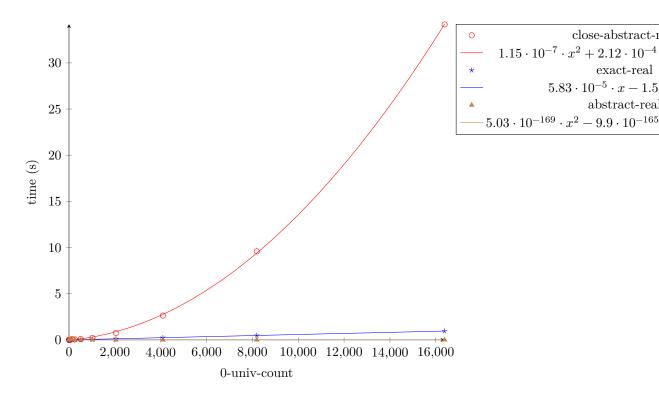
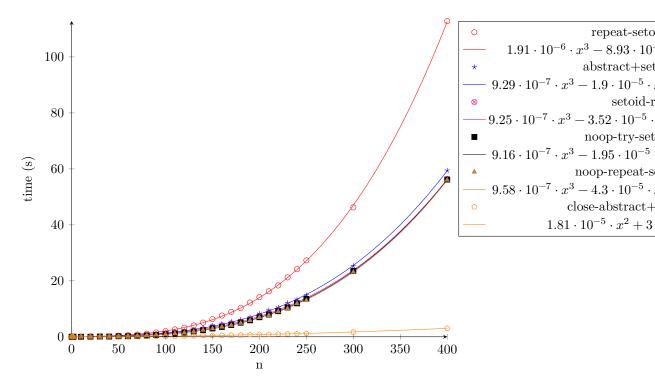
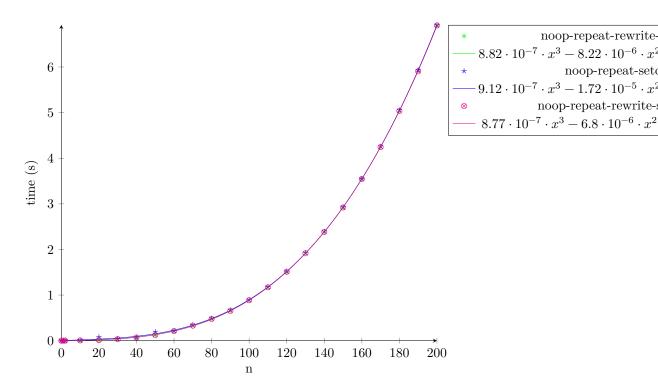


Figure 2: timing-n-polymorphic-universes param-1-n $\,0\,$



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



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

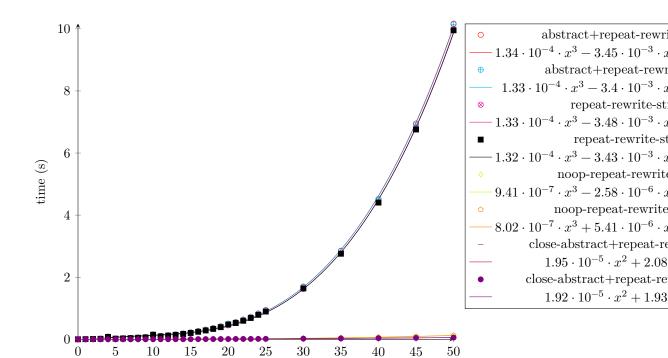
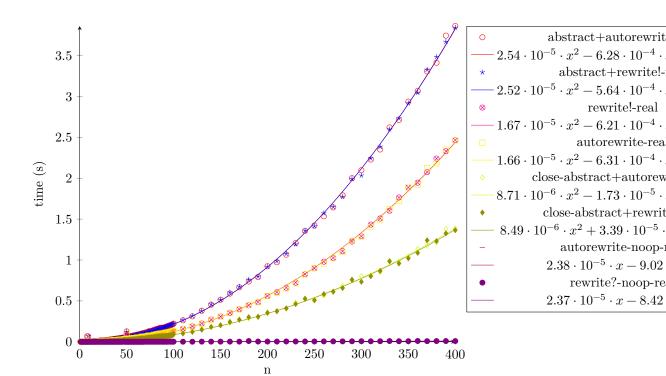


Figure 5: timing-rewrite-strat-under-binders

n



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

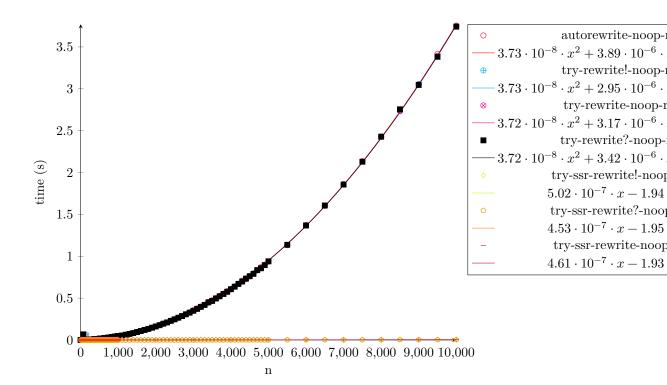
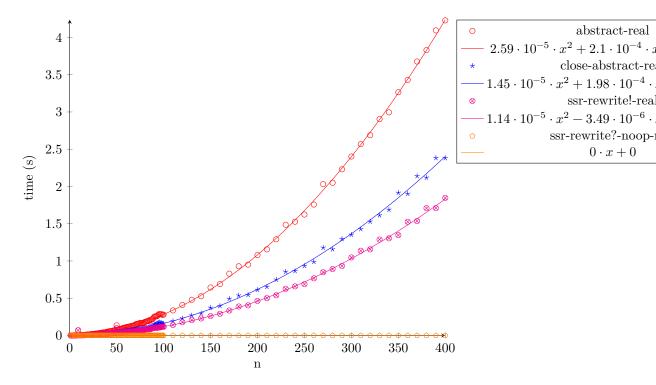
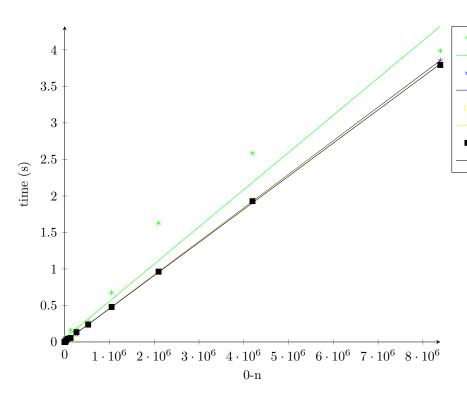


Figure 7: timing-rewrite-repeated-app-autorewrite-noop



 ${\bf Figure~8:~timing\text{-}rewrite\text{-}repeated\text{-}app\text{-}ssrrewrite}$



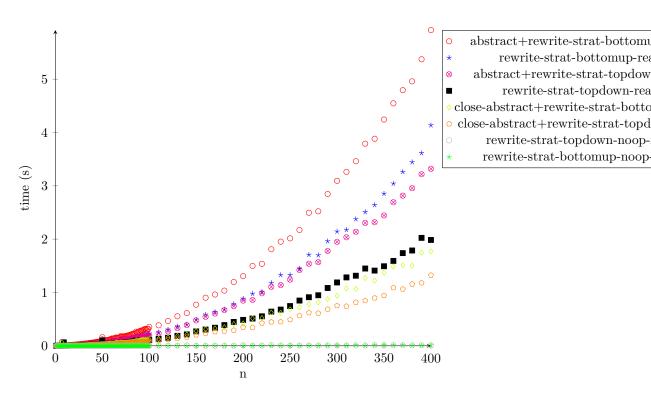
try-ssr-rewrite!-cold-noop-rea

 $5.1 \cdot 10^{-7} \cdot x + 4.69 \cdot 10^{-2}$ try-ssr-rewrite-noop-real

 $\begin{array}{l} 4.6\cdot 10^{-7}\cdot x - 1.88\cdot 10^{-3}\\ \text{try-ssr-rewrite?-noop-real} \end{array}$

 $\begin{aligned} &4.58 \cdot 10^{-7} \cdot x - 1.23 \cdot 10^{-3} \\ &\text{try-ssr-rewrite!-noop-real} \\ &4.54 \cdot 10^{-7} \cdot x + 2.69 \cdot 10^{-3} \end{aligned}$

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



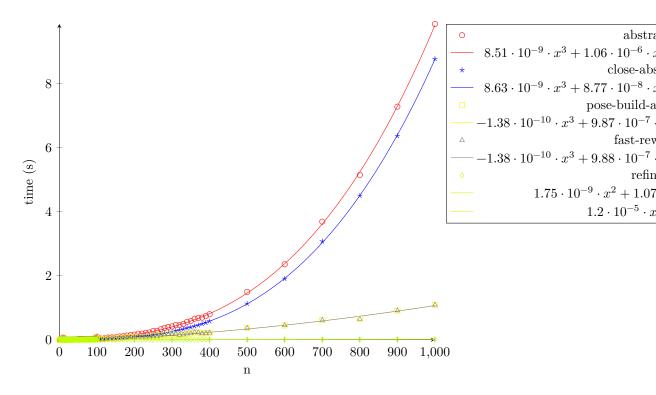
rewrite-strat-bottomup-rea

rewrite-strat-topdown-rea

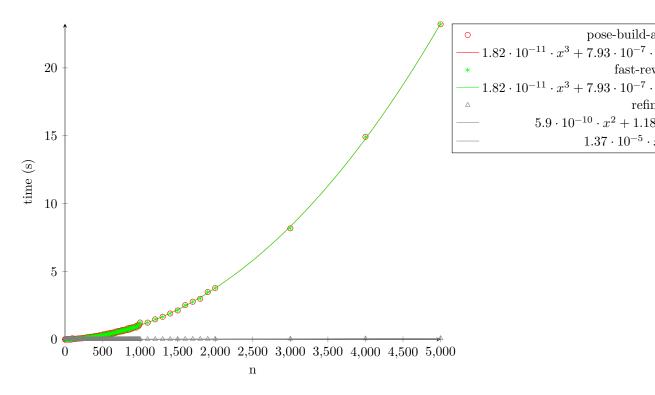
rewrite-strat-topdown-nooprewrite-strat-bottomup-noop-

abstract + rewrite - strat - topdow

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



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



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

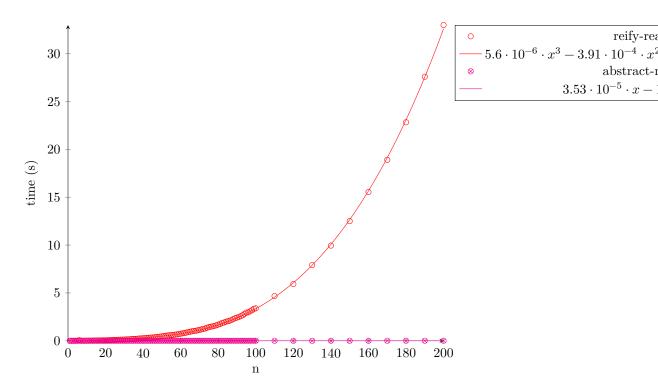
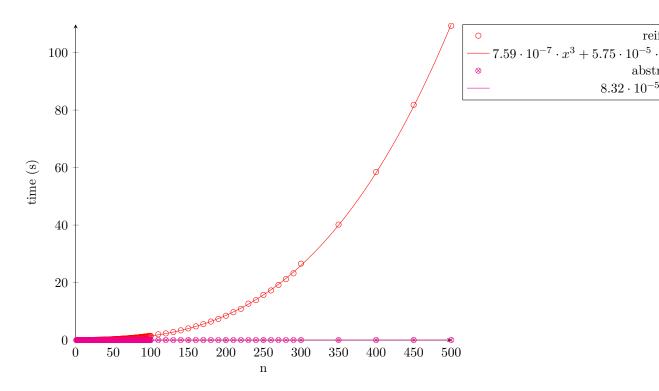


Figure 13: timing-typeclass-reification-let-in-HOAS



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