

Figure 1: timing-pattern

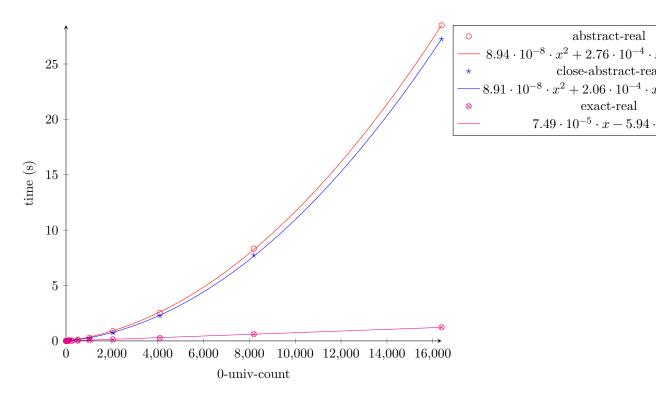
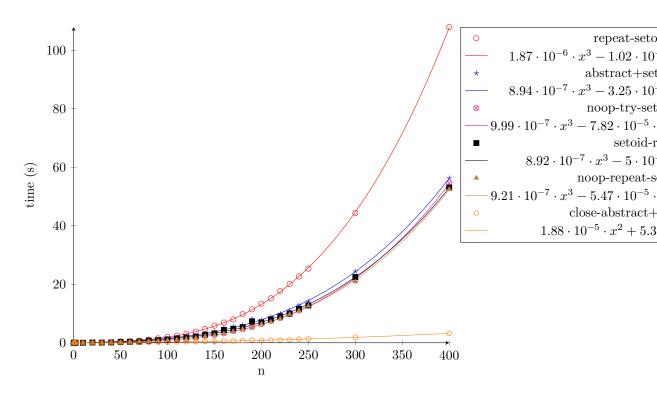


Figure 2: timing-n-polymorphic-universes param-1-n  $\,0\,$ 



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

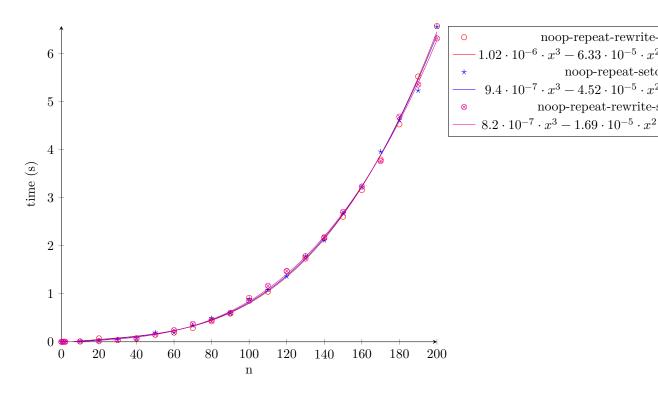
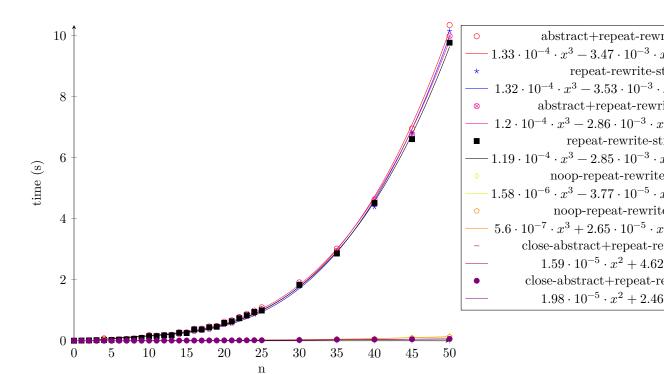
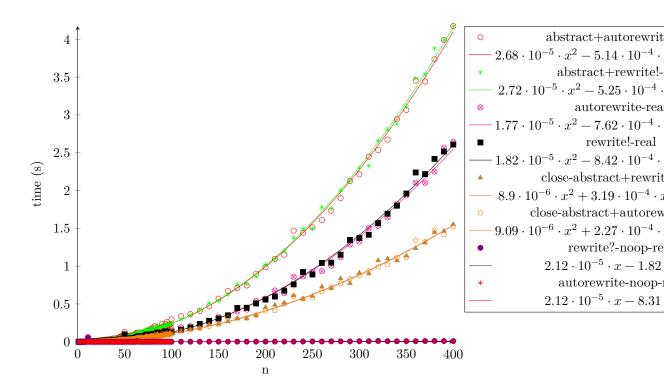


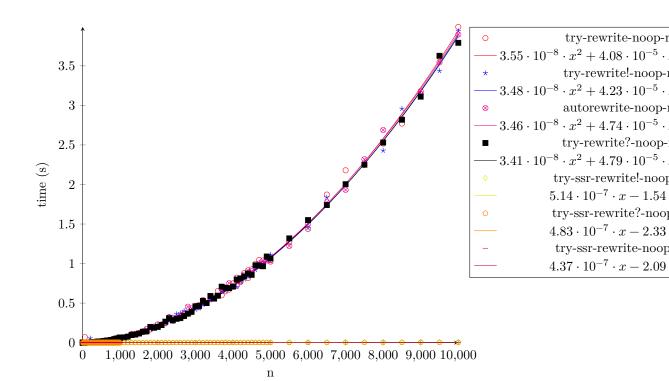
Figure 4: timing-repeat-setoid-rewrite-under-binders-noop



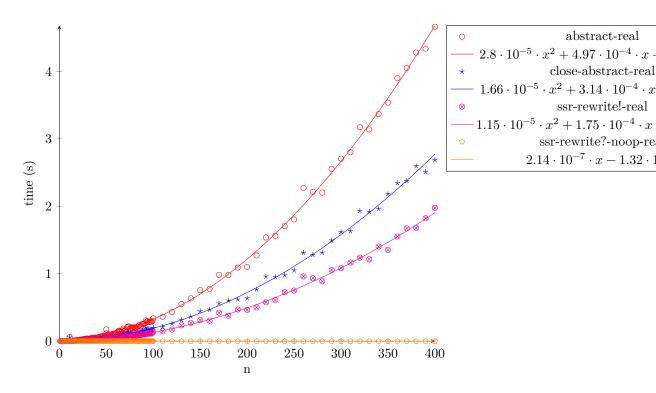
 $Figure\ 5:\ timing-rewrite-strat-under-binders$ 



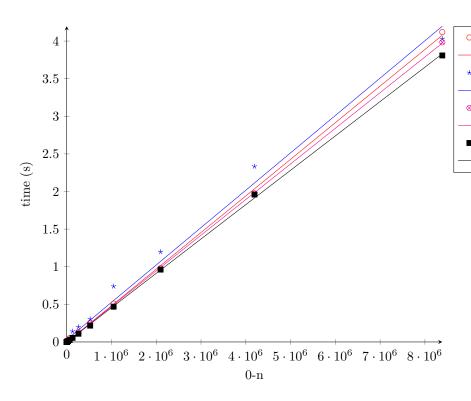
 $Figure \ 6: \ timing-rewrite-repeated-app-autorewrite \\$ 



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



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



try-ssr-rewrite?-noop-real

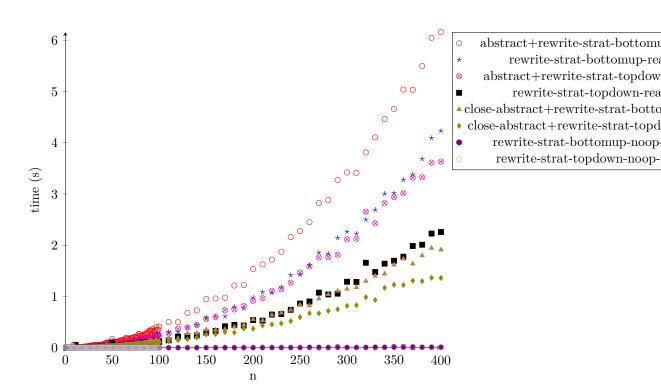
 $4.87 \cdot 10^{-7} \cdot x - 5.31 \cdot 10^{-3}$  try-ssr-rewrite!-cold-noop-rea

 $\begin{array}{l} 4.97 \cdot 10^{-7} \cdot x + 2.99 \cdot 10^{-2} \\ \text{try-ssr-rewrite!-noop-real} \end{array}$ 

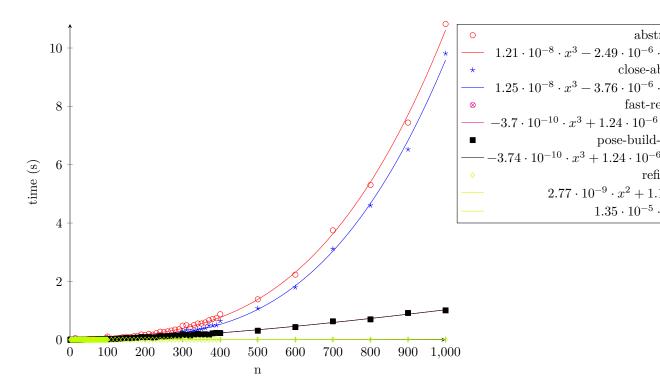
 $\begin{array}{l} 4.74\cdot 10^{-7}\cdot x - 2.18\cdot 10^{-3} \\ \text{try-ssr-rewrite-noop-real} \end{array}$ 

 $4.57 \cdot 10^{-7} \cdot x - 1.39 \cdot 10^{-3}$ 

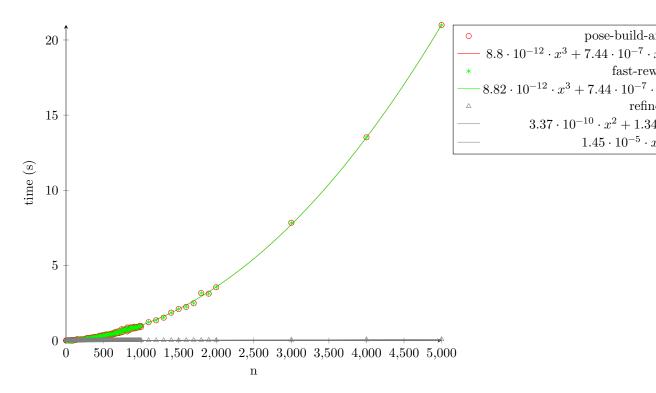
Figure 9: timing-rewrite-repeated-app-ssrrewrite-noop param-1-lgn  $\,1\,$ 



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



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



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

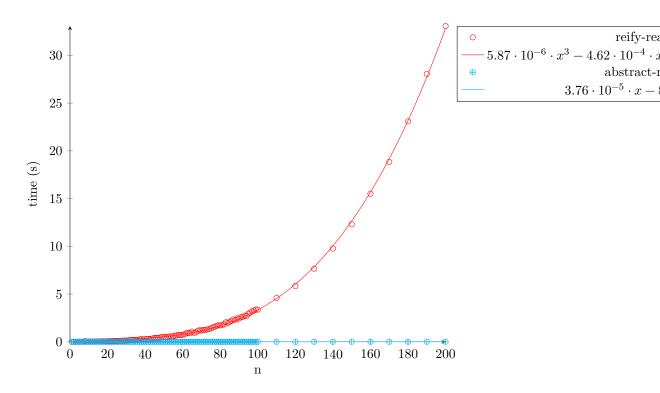
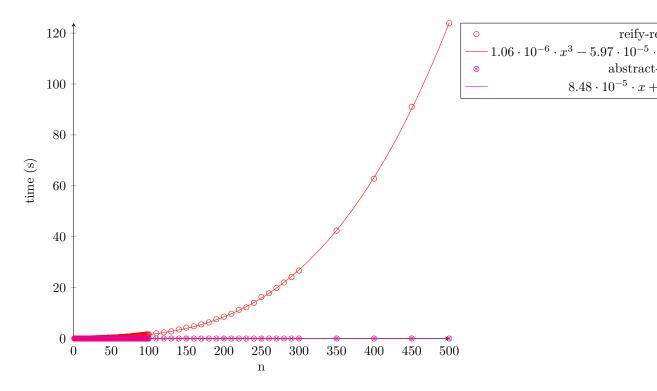


Figure 13: timing-typeclass-reification-let-in-HOAS



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

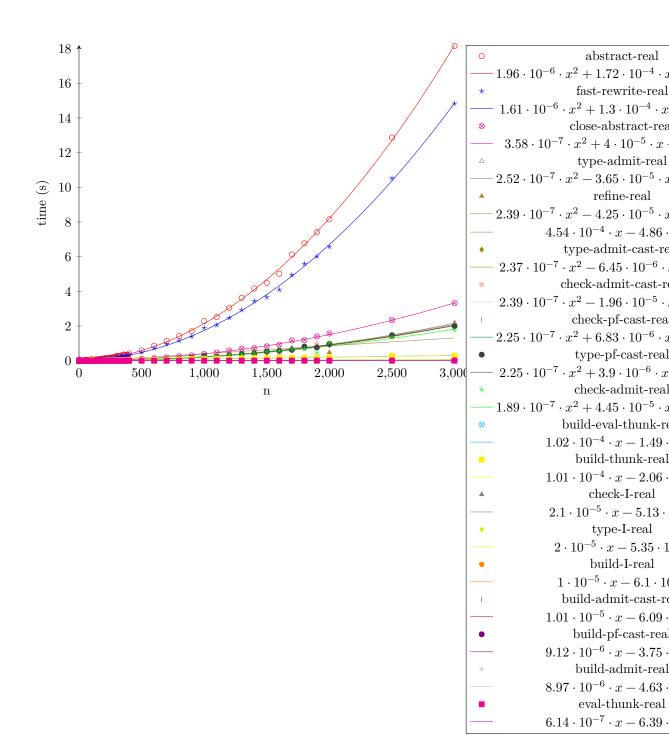


Figure 15: timing-rewrite-repeated-app-fast-rewrite-ltac2