

Figure 1: timing-pattern

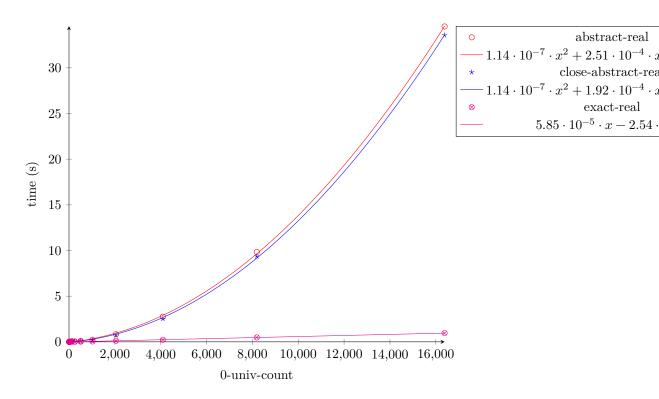


Figure 2: timing-n-polymorphic-universes param-1-n  $\,0\,$ 

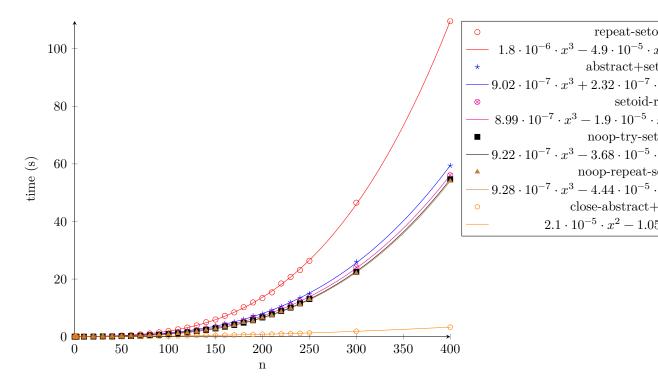
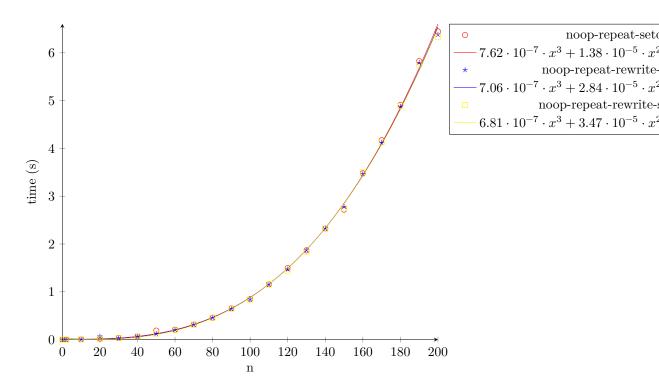
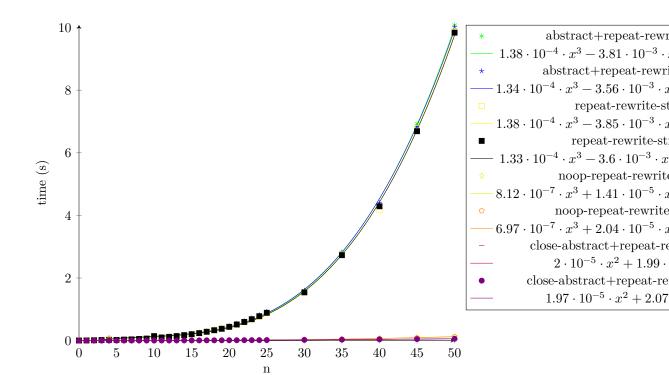


Figure 3: timing-repeat-setoid-rewrite-under-binders



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



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

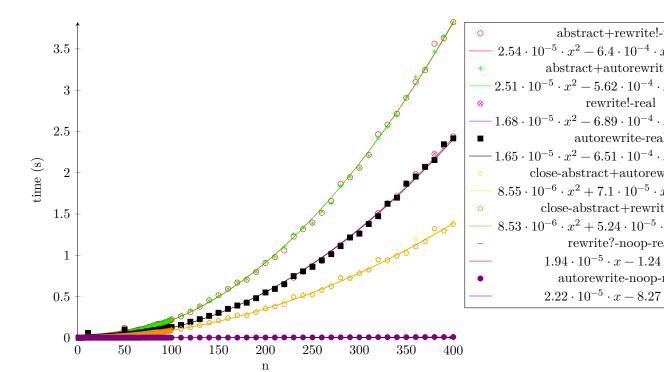
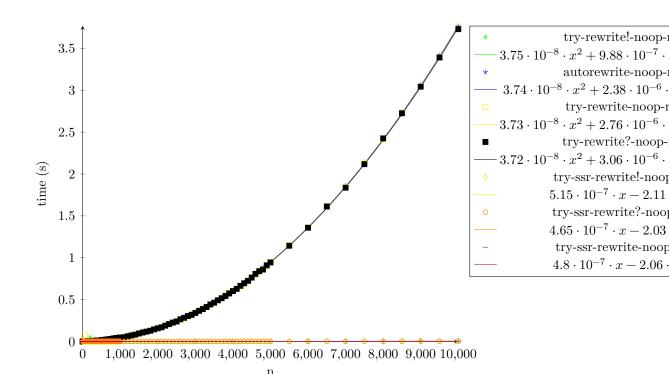


Figure 6: timing-rewrite-repeated-app-autorewrite



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

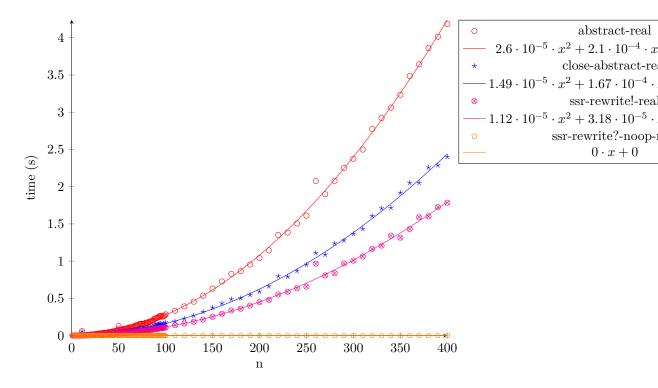
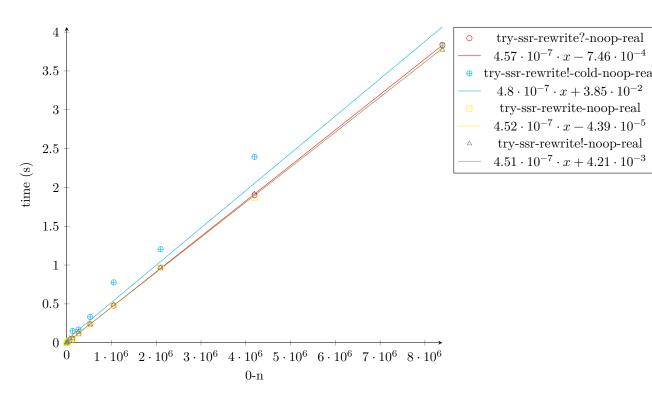


Figure 8: timing-rewrite-repeated-app-ssrrewrite



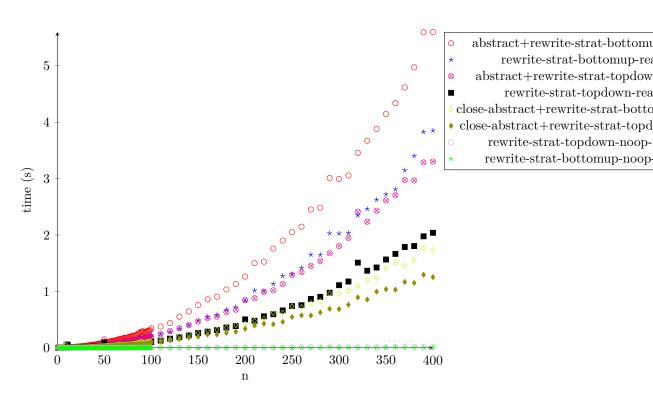
try-ssr-rewrite?-noop-real $4.57 \cdot 10^{-7} \cdot x - 7.46 \cdot 10^{-4}$ 

 $4.8\cdot 10^{-7}\cdot x + 3.85\cdot 10^{-2}$ try-ssr-rewrite-noop-real

 $4.52 \cdot 10^{-7} \cdot x - 4.39 \cdot 10^{-5}$ try-ssr-rewrite!-noop-real

 $4.51 \cdot 10^{-7} \cdot x + 4.21 \cdot 10^{-3}$ 

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-

 $Figure\ 10:\ timing-rewrite-repeated-app-rewrite-strat$ 

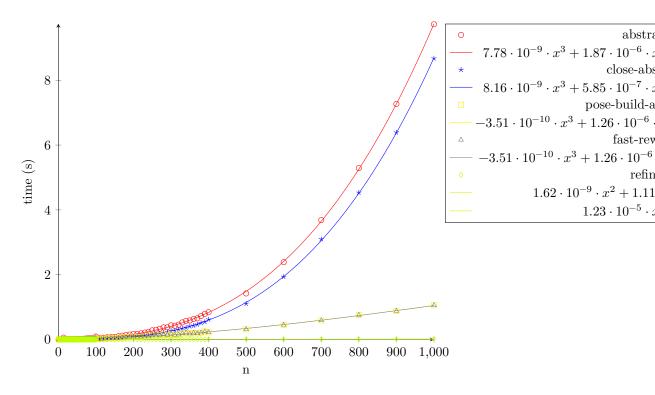
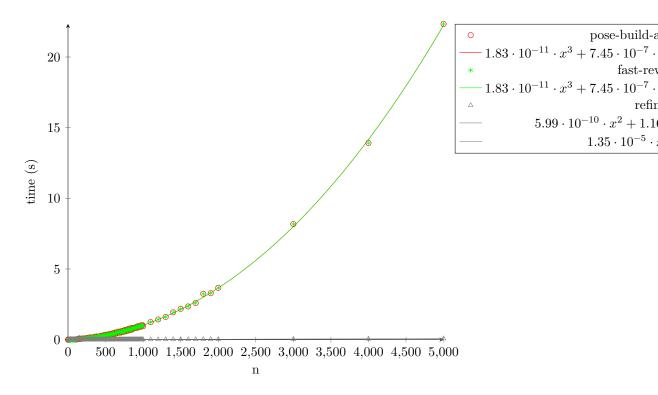
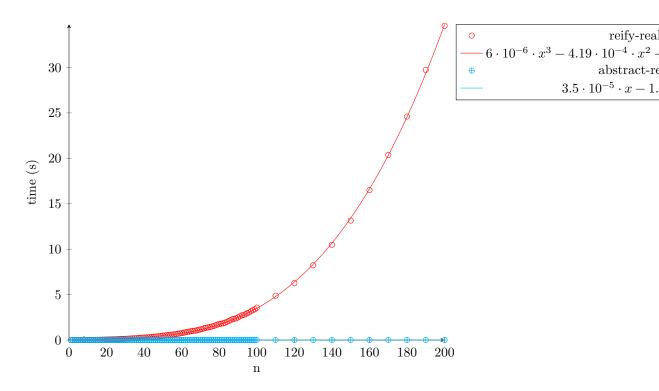


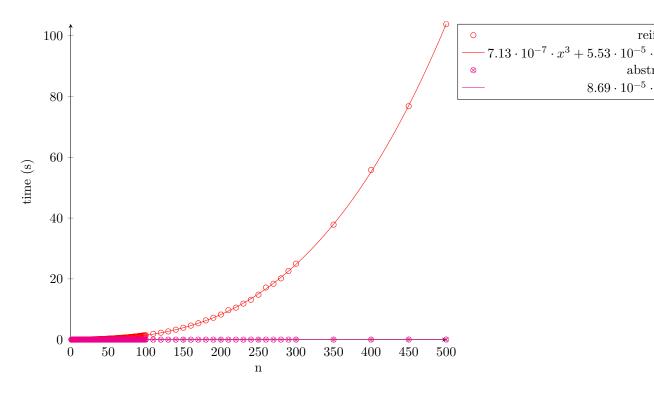
Figure 11: timing-rewrite-repeated-app-fast-rewrite



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



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



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

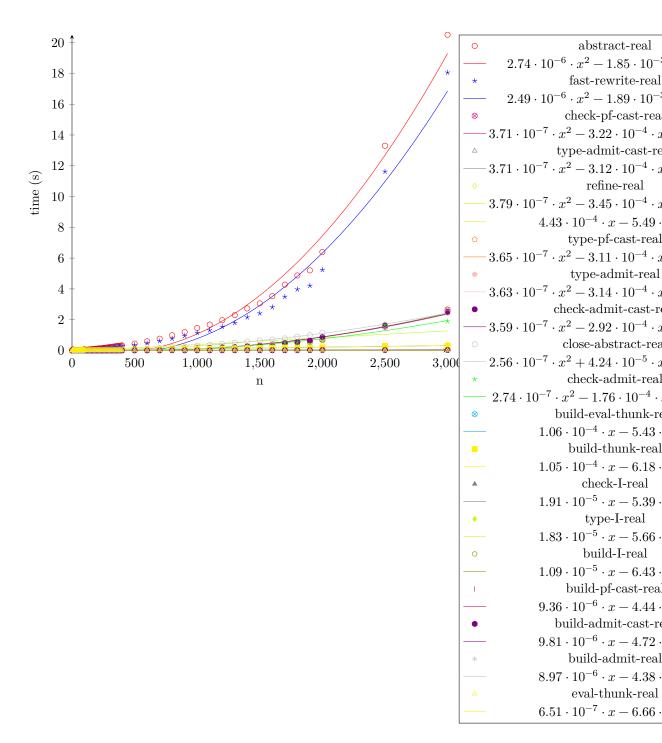


Figure 15: timing-rewrite-repeated-app-fast-rewrite-ltac2