

Figure 1: timing-pattern

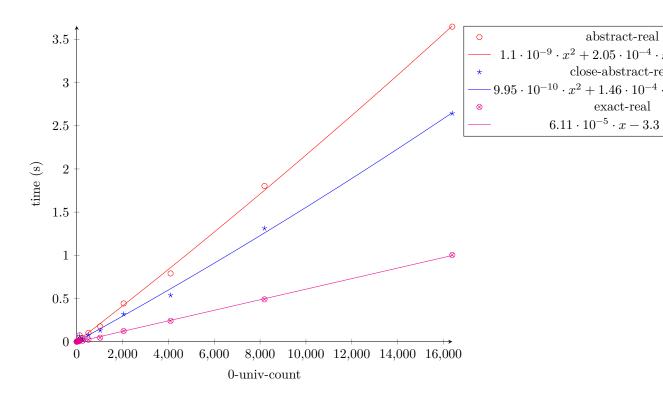


Figure 2: timing-n-polymorphic-universes param-1-n  $\,0\,$ 

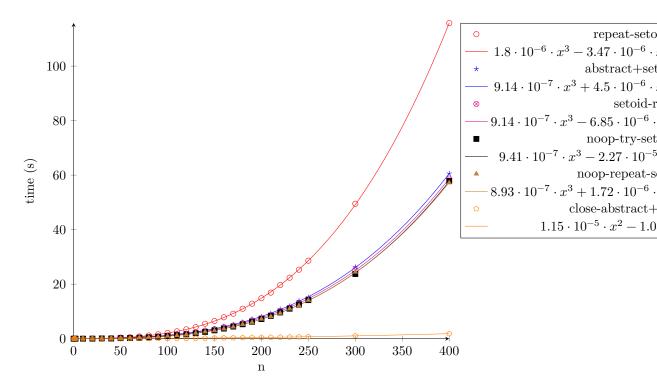


Figure 3: timing-repeat-setoid-rewrite-under-binders

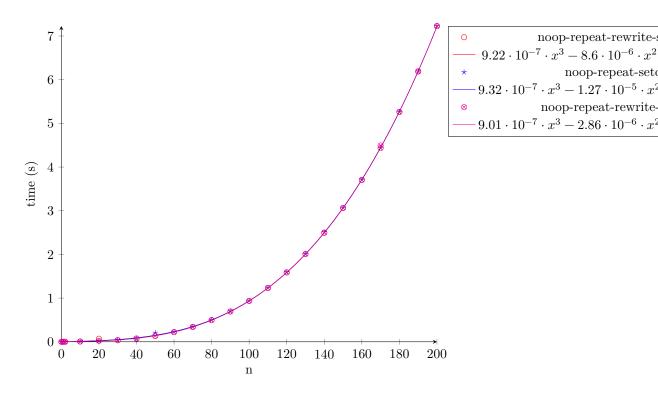
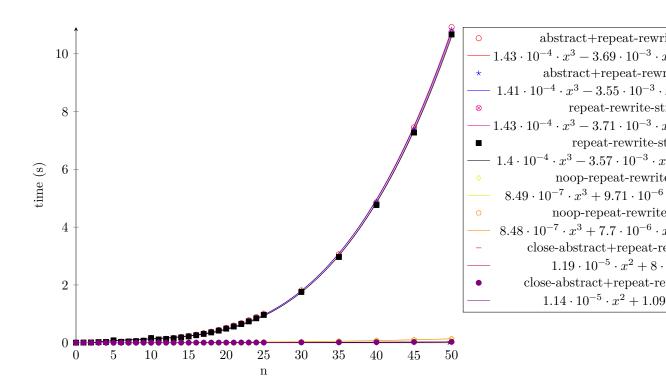
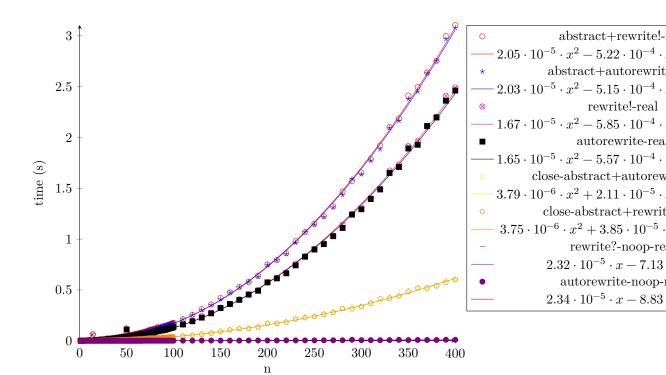


Figure 4: timing-repeat-setoid-rewrite-under-binders-noop



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



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

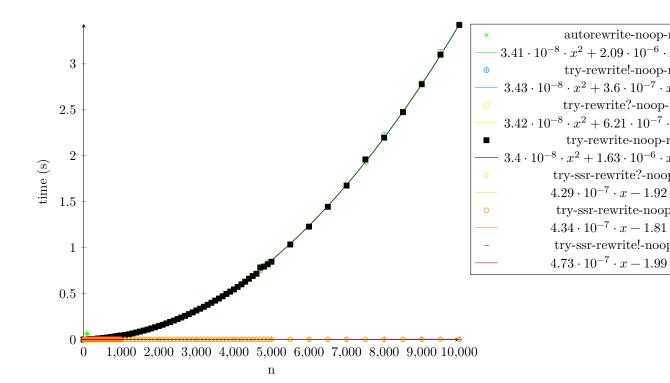
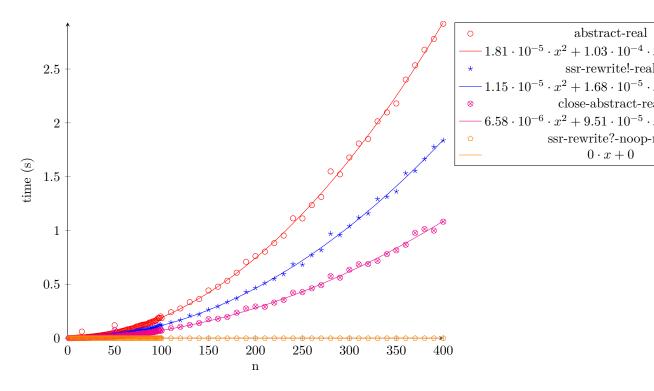
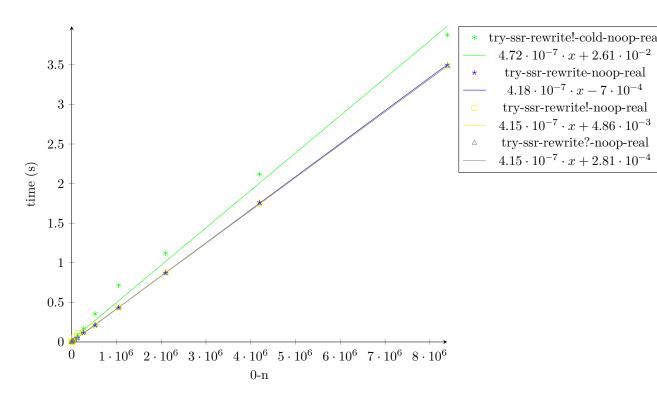


Figure 7: timing-rewrite-repeated-app-autorewrite-noop



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



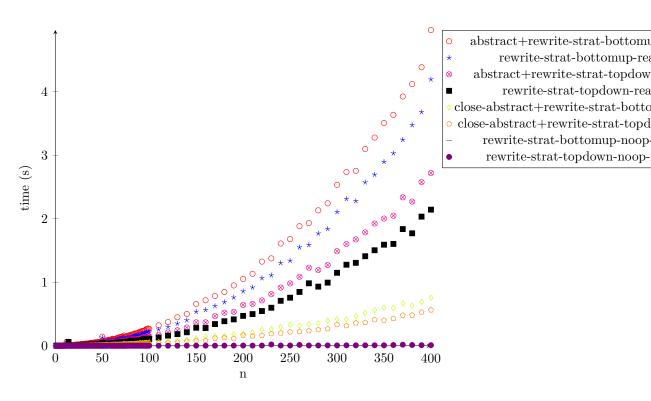
 $4.72 \cdot 10^{-7} \cdot x + 2.61 \cdot 10^{-2}$ 

try-ssr-rewrite-noop-real  $4.18\cdot 10^{-7}\cdot x - 7\cdot 10^{-4}$ 

try-ssr-rewrite!-noop-real $4.15\cdot 10^{-7}\cdot x + 4.86\cdot 10^{-3}$ try-ssr-rewrite?-noop-real

 $4.15\cdot 10^{-7}\cdot x + 2.81\cdot 10^{-4}$ 

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

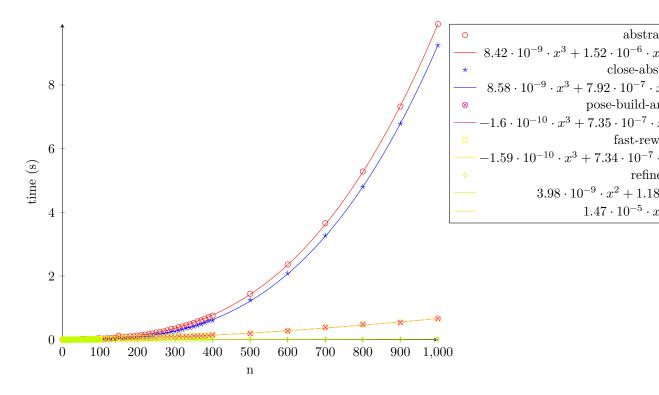


rewrite-strat-bottomup-rea abstract + rewrite - strat - topdowrewrite-strat-topdown-rea

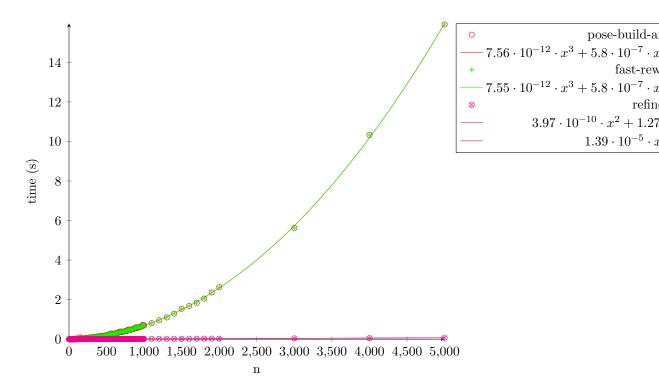
rewrite-strat-bottomup-noop-

rewrite-strat-topdown-noop-

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



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



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

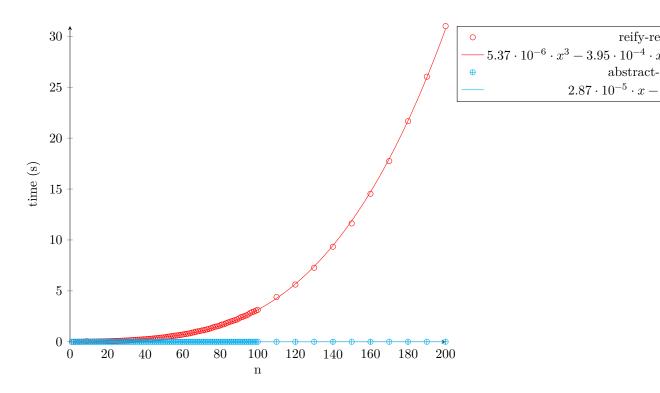


Figure 13: timing-typeclass-reification-let-in-HOAS

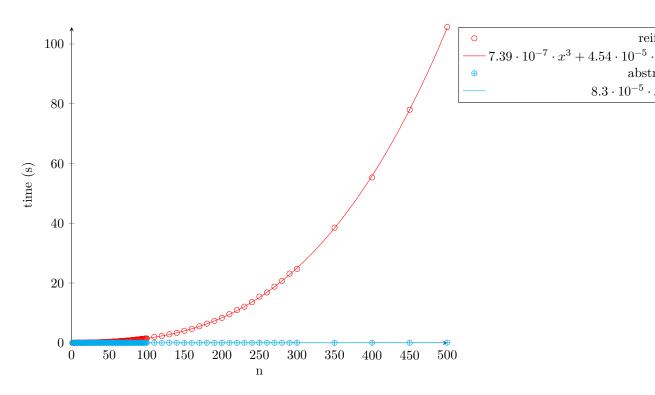


Figure 14: timing-typeclass-reification-let-in-PHOAS

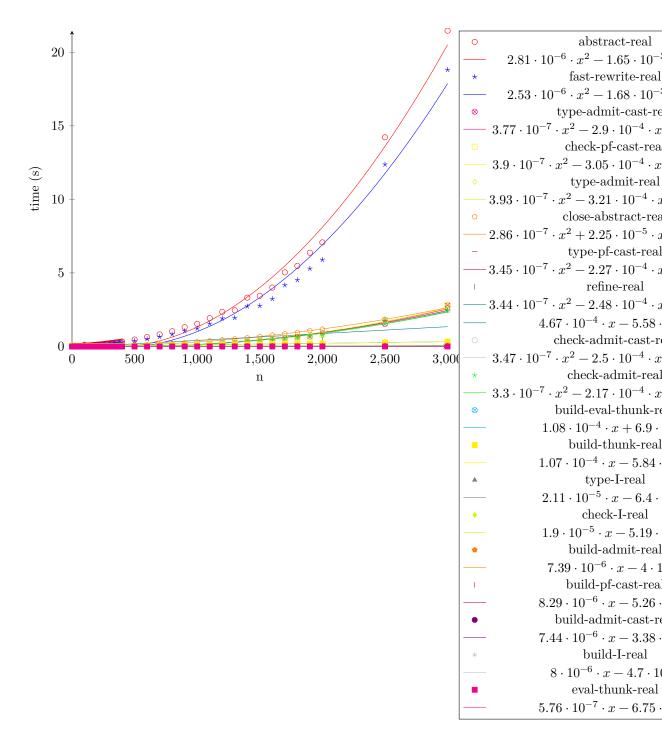


Figure 15: timing-rewrite-repeated-app-fast-rewrite-ltac2