

Figure 1: timing-pattern

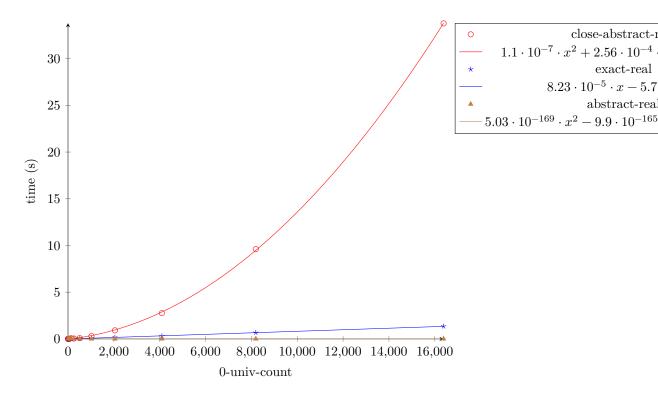
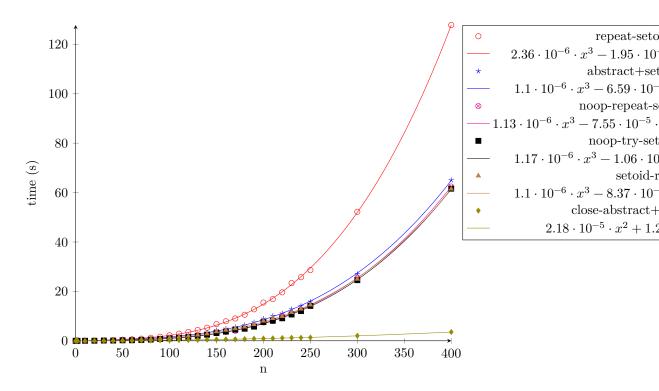


Figure 2: timing-n-polymorphic-universes param-1-n  $\,0\,$ 



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

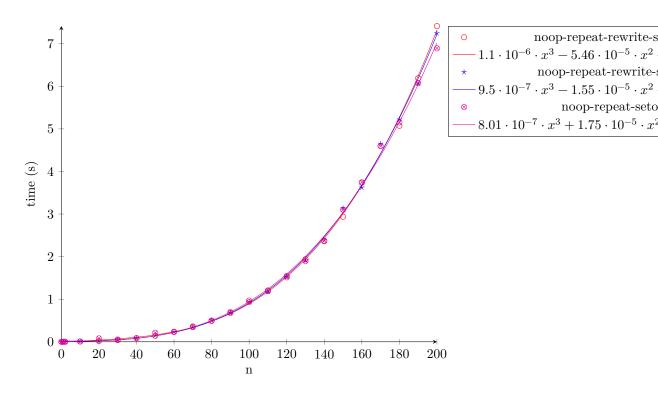
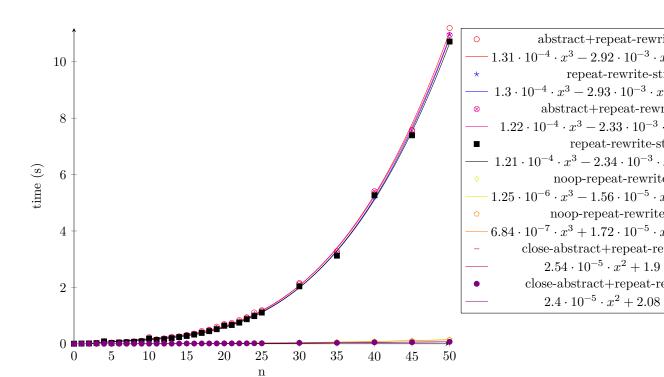
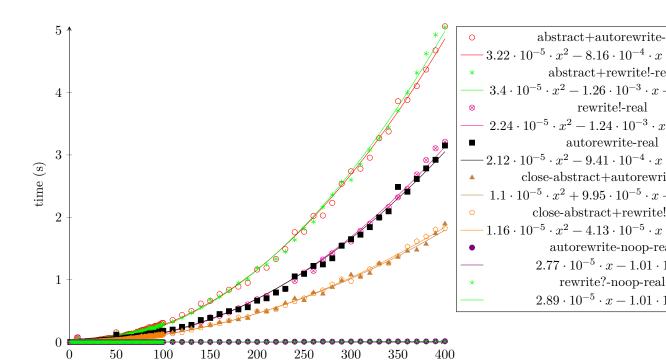


Figure 4: timing-repeat-setoid-rewrite-under-binders-noop



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



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

n

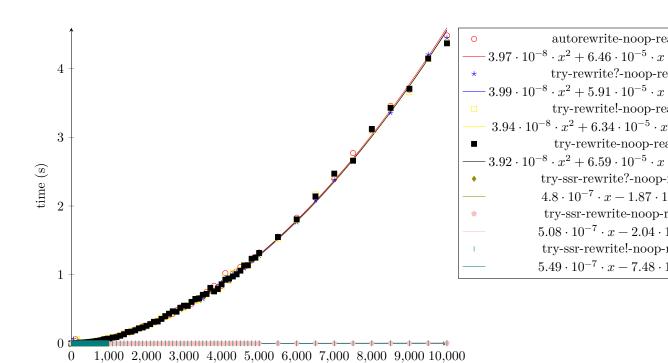
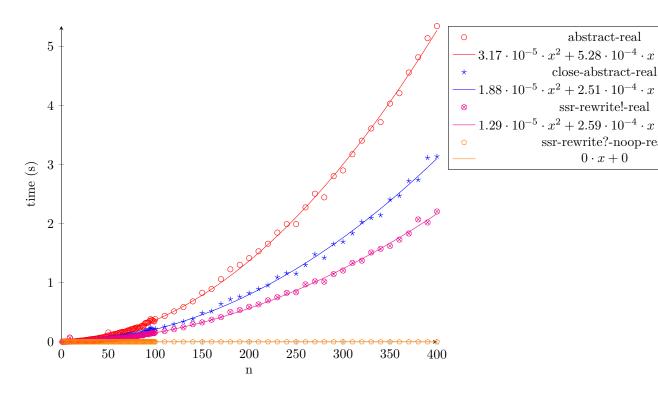


Figure 7: timing-rewrite-repeated-app-autorewrite-noop

n



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

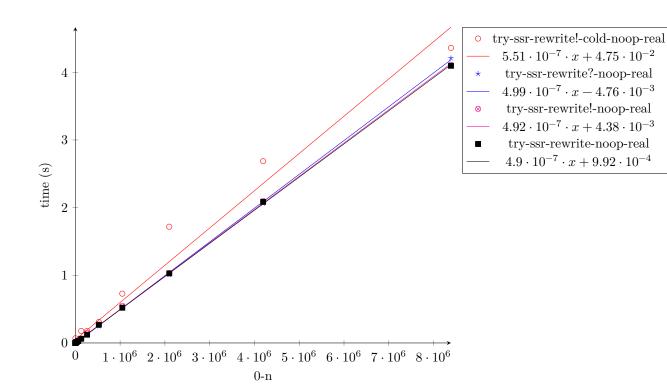
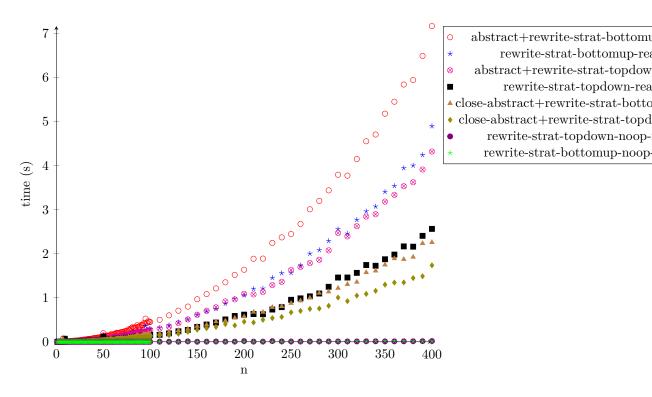


Figure 9: timing-rewrite-repeated-app-ssrrewrite-noop param-1-lgn  $\ 1$ 



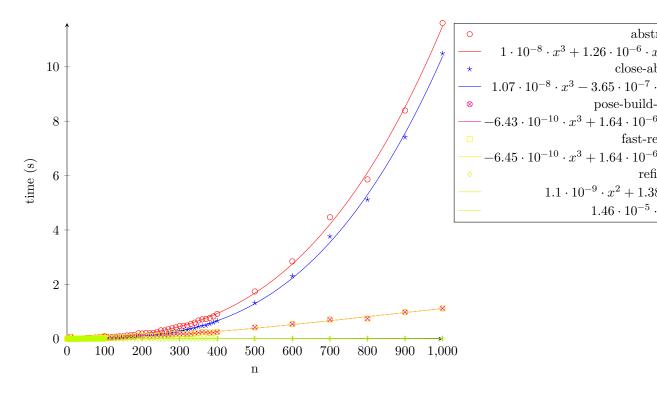
rewrite-strat-bottomup-rea

rewrite-strat-topdown-rea

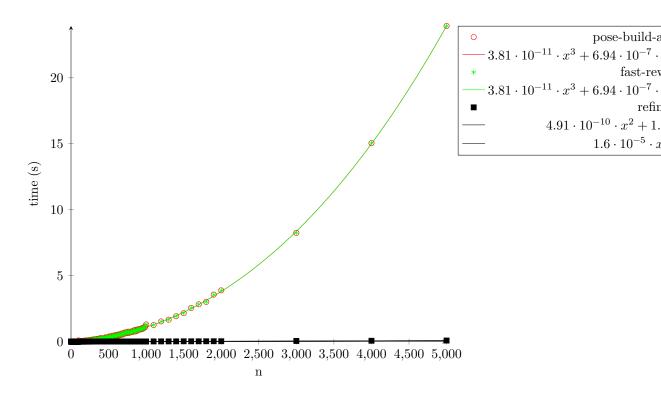
rewrite-strat-topdown-nooprewrite-strat-bottomup-noop-

abstract + rewrite - strat - topdow

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



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



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

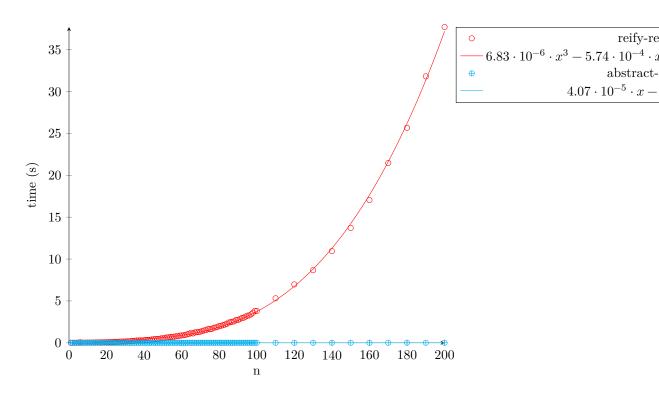


Figure 13: timing-typeclass-reification-let-in-HOAS

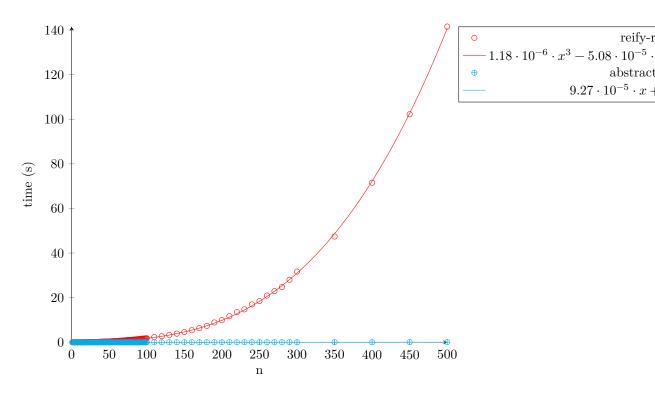


Figure 14: timing-typeclass-reification-let-in-PHOAS