

Figure 1: timing-pattern

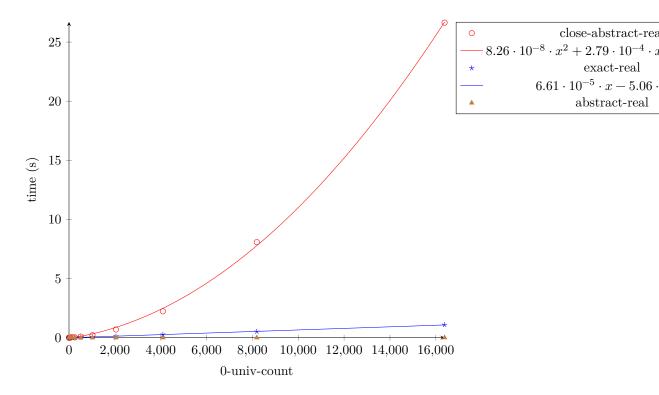


Figure 2: timing-n-polymorphic-universes param-1-n $\,0\,$

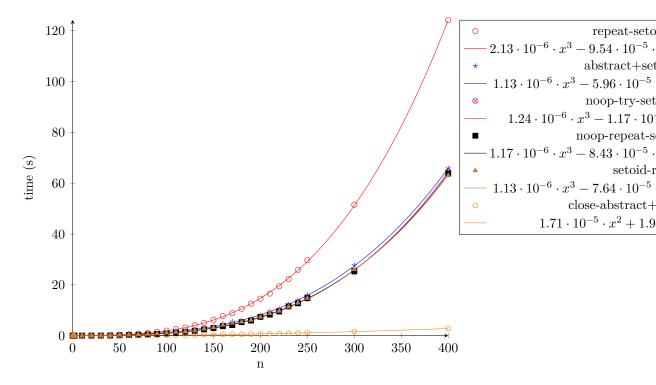


Figure 3: timing-repeat-setoid-rewrite-under-binders

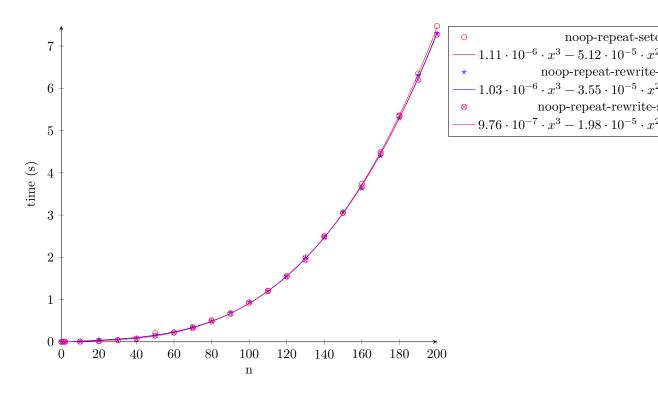
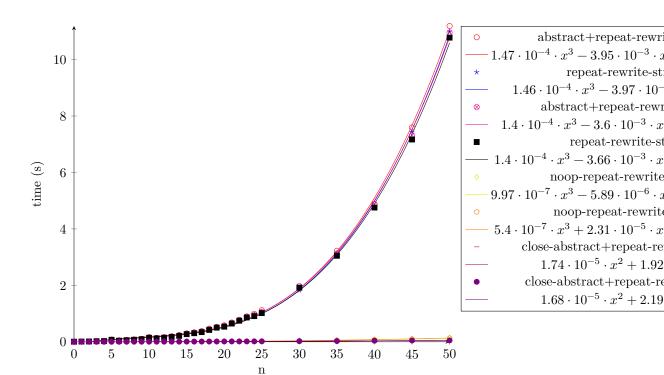
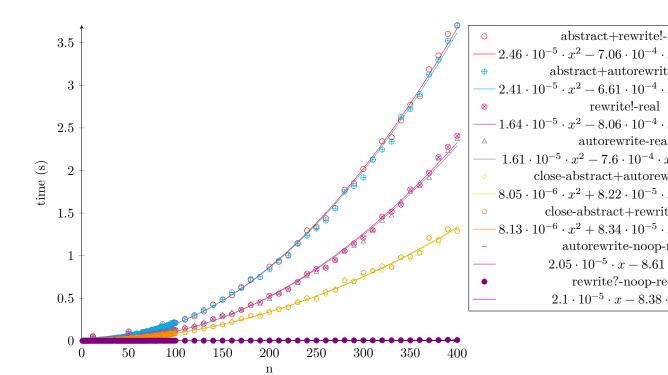


Figure 4: timing-repeat-setoid-rewrite-under-binders-noop



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



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

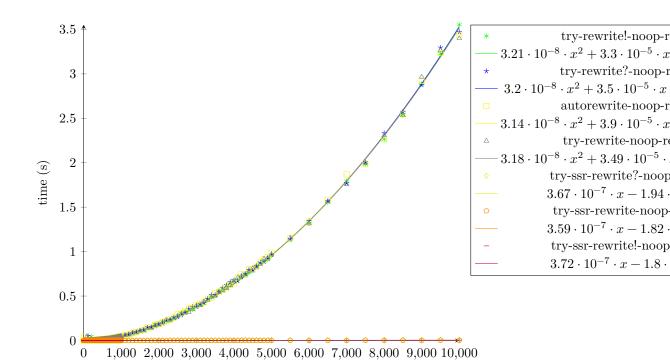
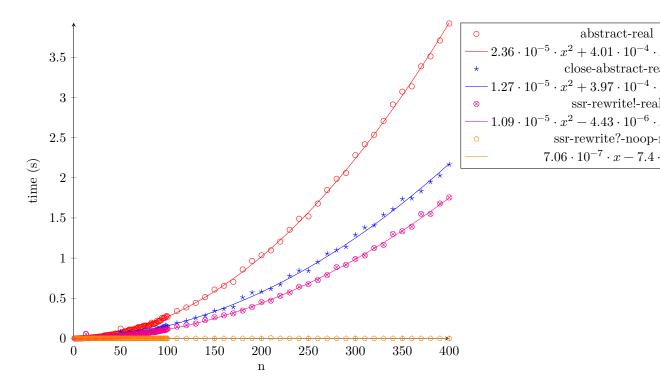
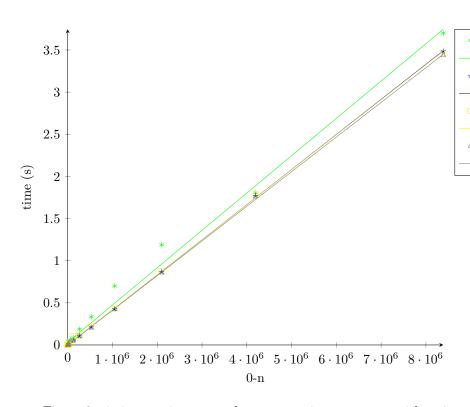


Figure 7: timing-rewrite-repeated-app-autorewrite-noop

n



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



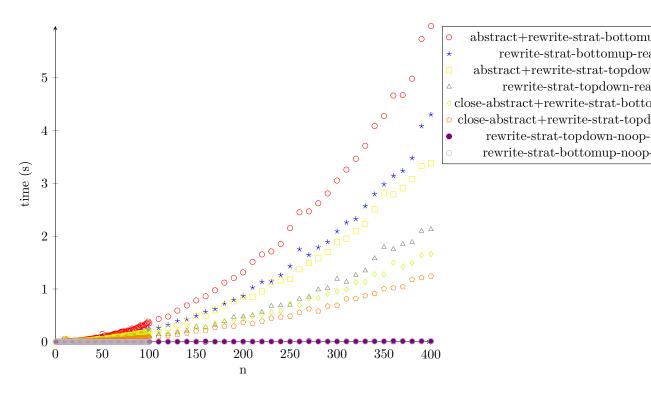
try-ssr-rewrite!-cold-noop-rea

 $4.43 \cdot 10^{-7} \cdot x + 3.12 \cdot 10^{-2}$ try-ssr-rewrite?-noop-real $4.16 \cdot 10^{-7} \cdot x - 7.75 \cdot 10^{-4}$

try-ssr-rewrite!-noop-real $4.15\cdot 10^{-7}\cdot x + 3.08\cdot 10^{-3}$

try-ssr-rewrite-noop-real $4.11\cdot 10^{-7}\cdot x + 7.39\cdot 10^{-4}$

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



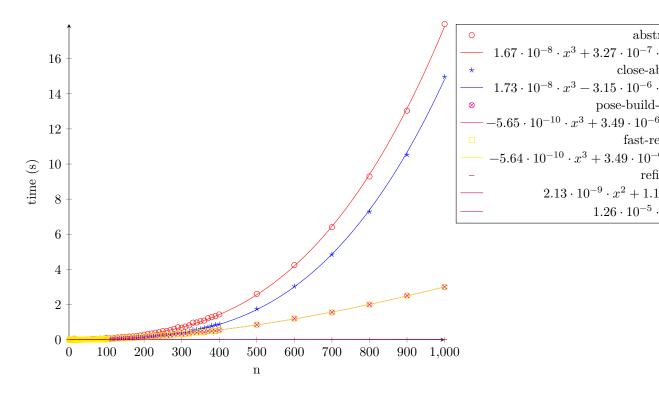
abstract + rewrite - strat - bottom u

rewrite-strat-bottomup-rea abstract + rewrite - strat - topdow

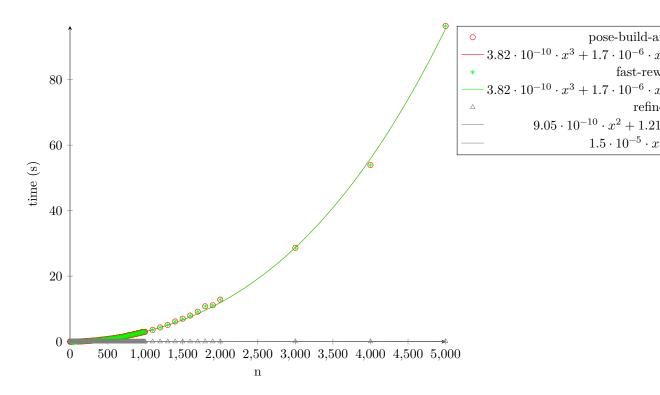
rewrite-strat-topdown-rea

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

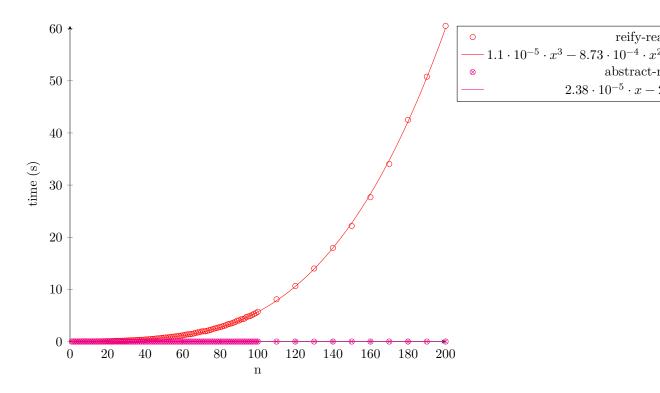
 $Figure~10:~timing\mbox{-rewrite-repeated-app-rewrite-strat}$



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



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



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

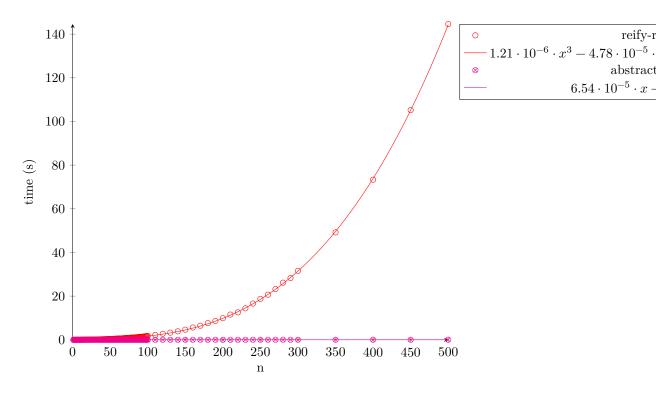


Figure 14: timing-typeclass-reification-let-in-PHOAS