

Figure 1: timing-pattern

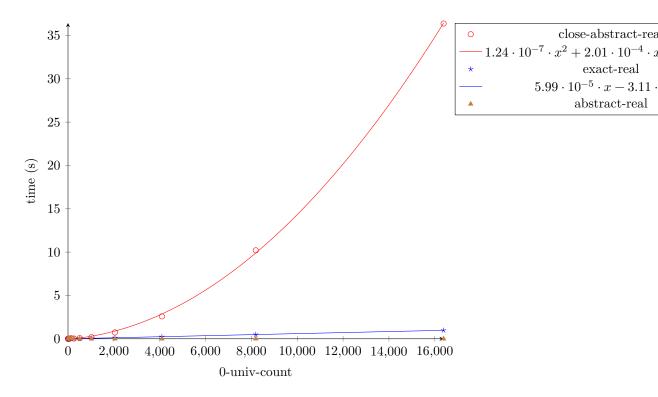


Figure 2: timing-n-polymorphic-universes param-1-n $\,0\,$

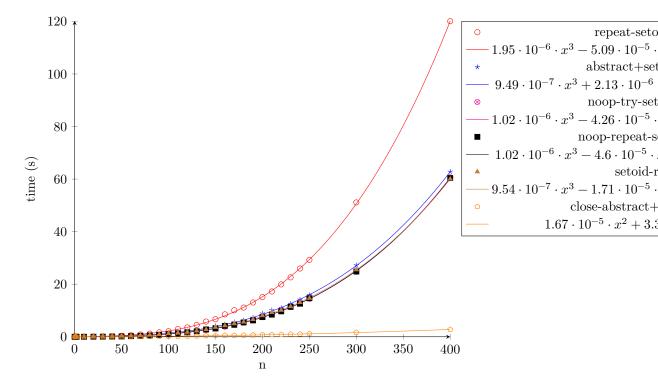
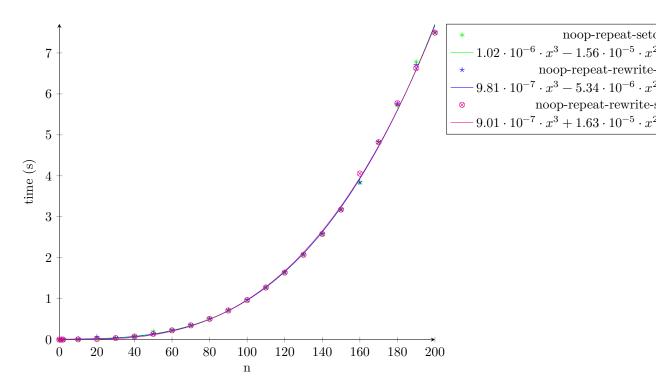
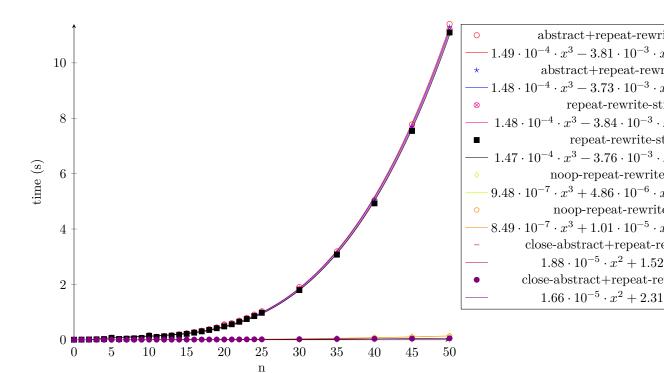


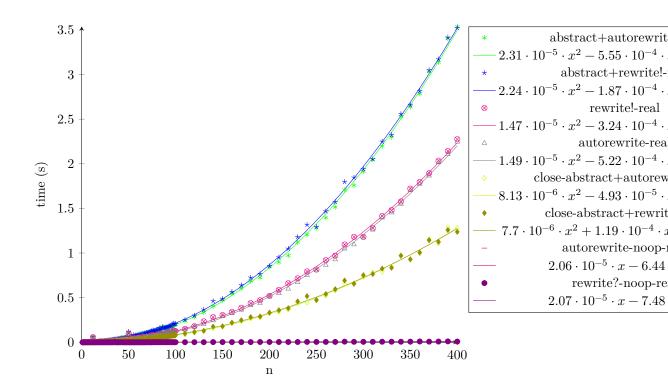
Figure 3: timing-repeat-setoid-rewrite-under-binders



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



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



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

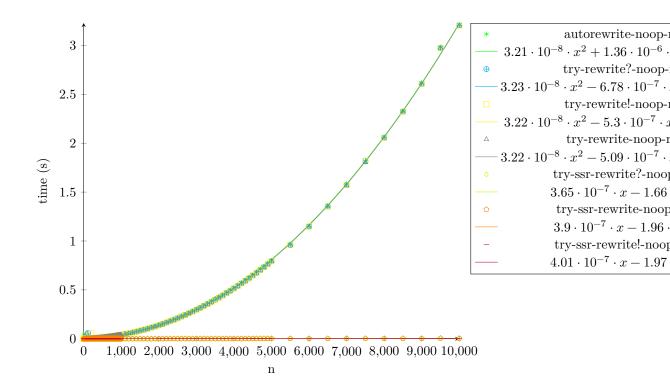
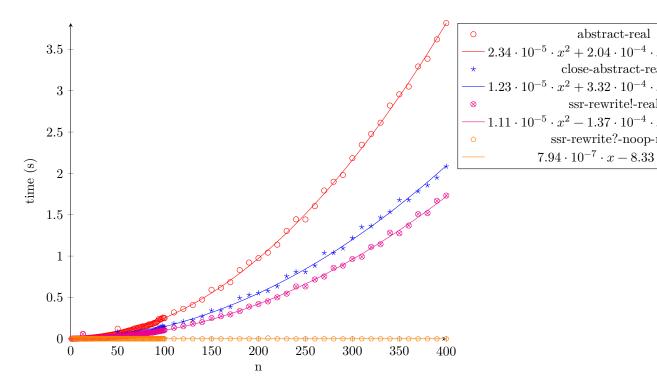
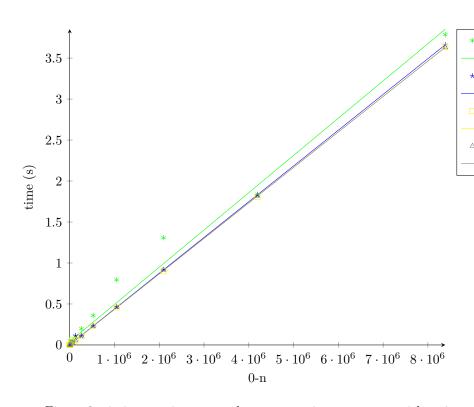


Figure 7: timing-rewrite-repeated-app-autorewrite-noop



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



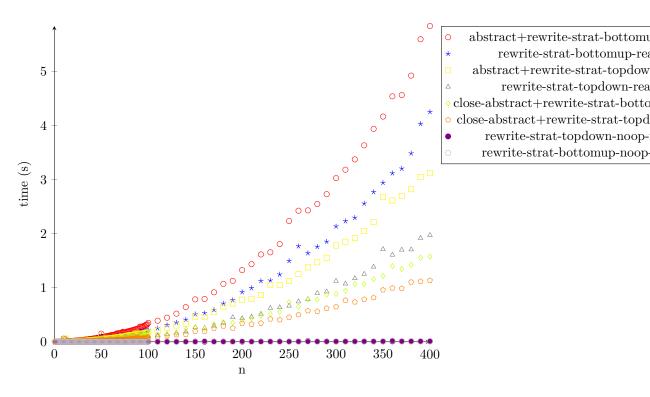
try-ssr-rewrite!-cold-noop-rea $4.54\cdot 10^{-7}\cdot x + 4.04\cdot 10^{-2}$

try-ssr-rewrite!-noop-real $4.36\cdot 10^{-7}\cdot x + 2.83\cdot 10^{-3}$

try-ssr-rewrite-noop-real $4.33\cdot 10^{-7}\cdot x + 1.15\cdot 10^{-3}$

try-ssr-rewrite?-noop-real $4.33 \cdot 10^{-7} \cdot x + 1.05 \cdot 10^{-3}$

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



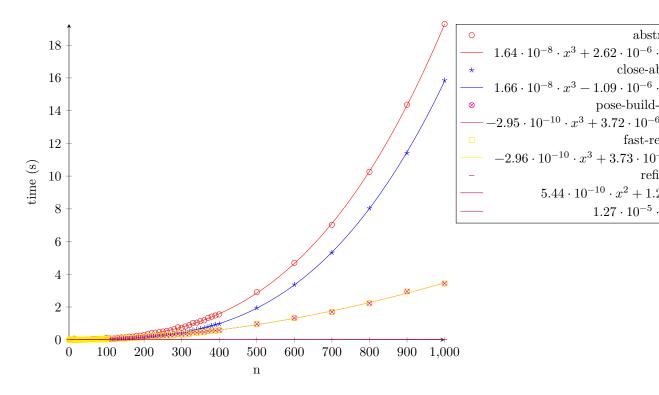
 $abstract + rewrite - strat - bottom \\ u$

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

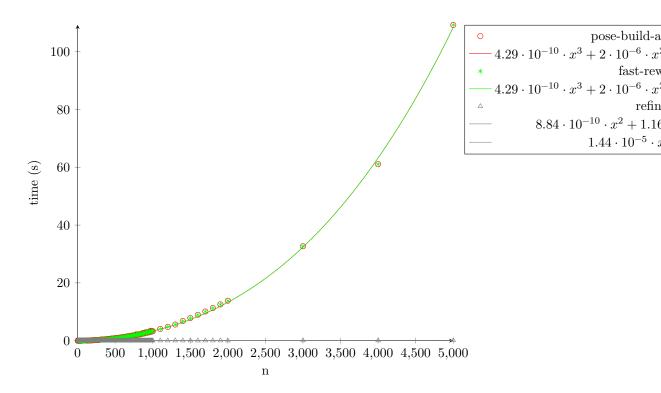
rewrite-strat-topdown-nooprewrite-strat-bottomup-noop-

rewrite-strat-bottomup-rea

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



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



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

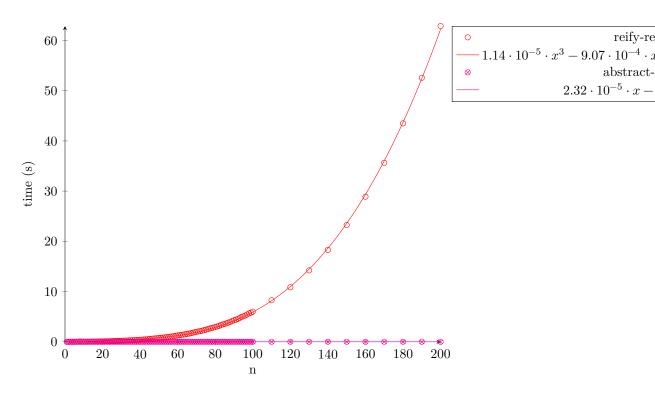
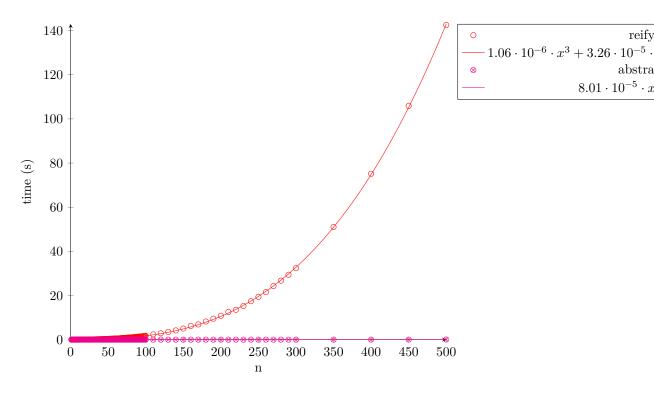


Figure 13: timing-typeclass-reification-let-in-HOAS



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