

Figure 1: timing-pattern

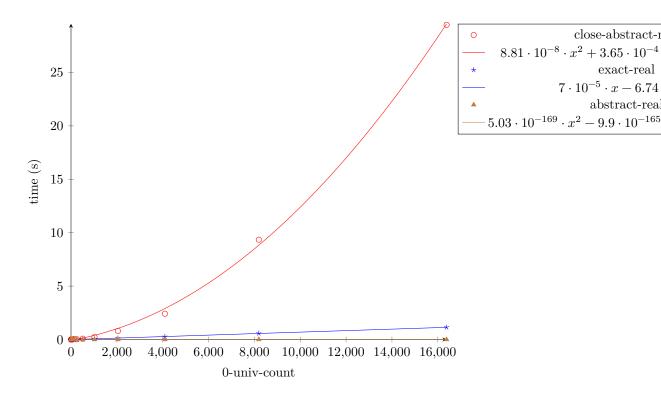
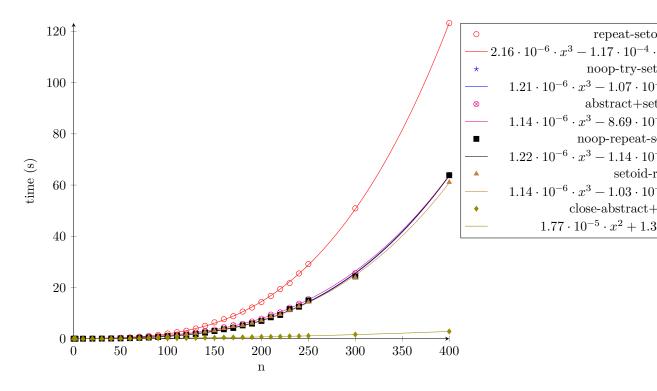


Figure 2: timing-n-polymorphic-universes param-1-n $\,0\,$



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

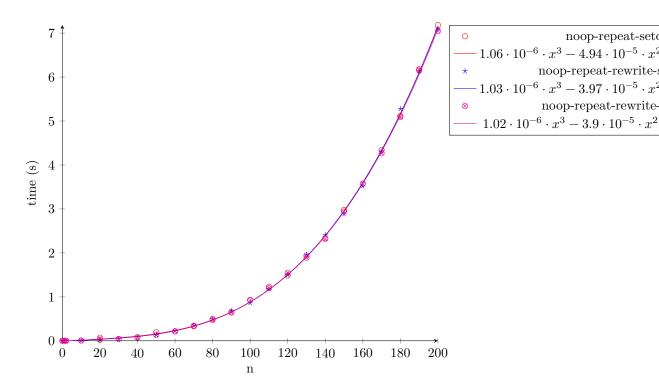
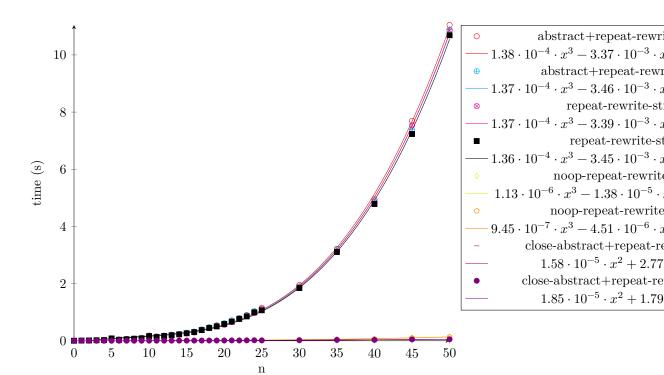
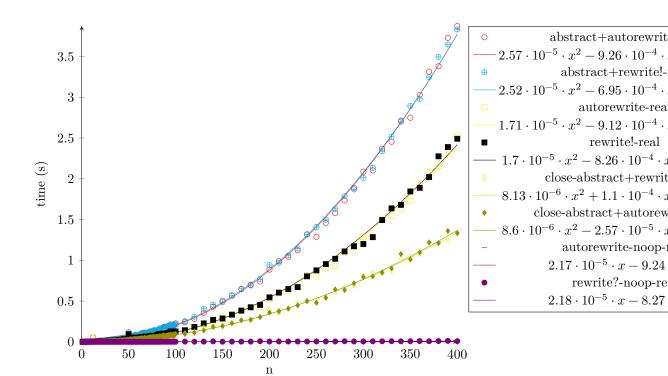


Figure 4: timing-repeat-setoid-rewrite-under-binders-noop



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



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

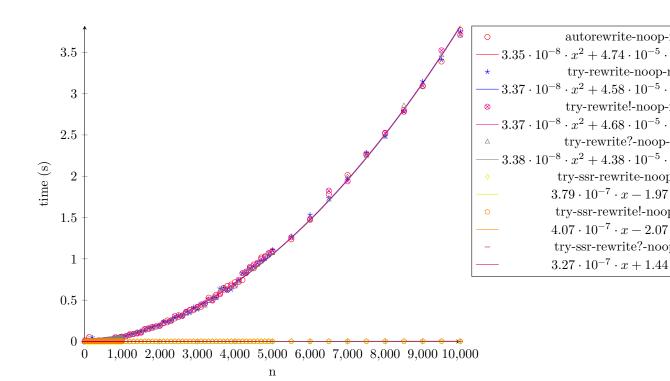
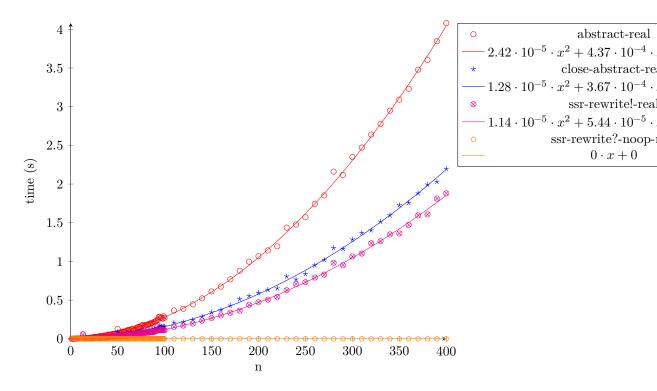
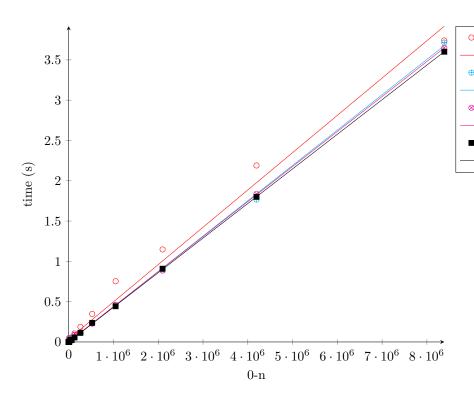


Figure 7: timing-rewrite-repeated-app-autorewrite-noop



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



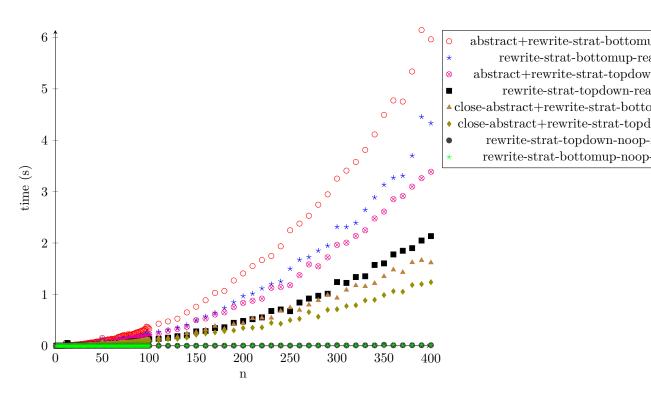
try-ssr-rewrite!-cold-noop-rea $4.63 \cdot 10^{-7} \cdot x + 3.45 \cdot 10^{-2}$

try-ssr-rewrite-noop-real $4.38\cdot 10^{-7}\cdot x - 1.49\cdot 10^{-3}$

try-ssr-rewrite!-noop-real $4.35\cdot 10^{-7}\cdot x + 3.76\cdot 10^{-3}$

try-ssr-rewrite?-noop-real $4.29\cdot 10^{-7}\cdot x + 7.13\cdot 10^{-4}$

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



rewrite-strat-bottomup-real

rewrite-strat-topdown-rea

rewrite-strat-topdown-noop-

rewrite-strat-bottomup-noop-

abstract + rewrite - strat - topdow

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

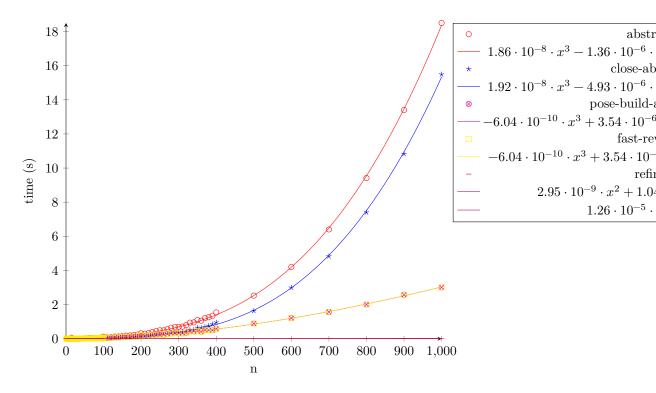


Figure 11: timing-rewrite-repeated-app-fast-rewrite

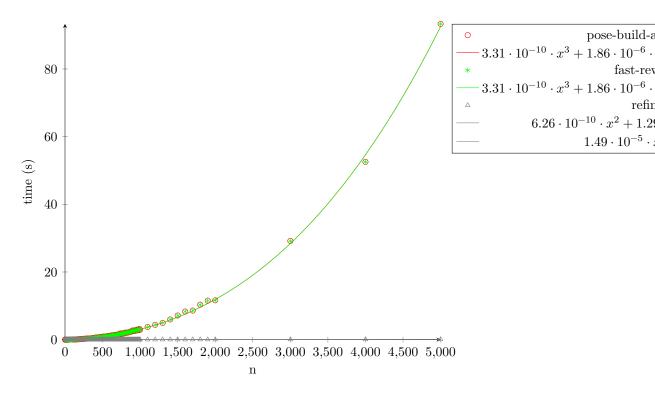
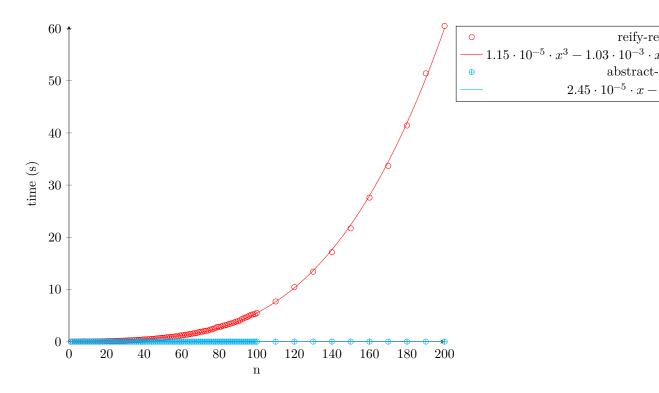


Figure 12: timing-rewrite-repeated-app-fast-rewrite-no-abstract



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

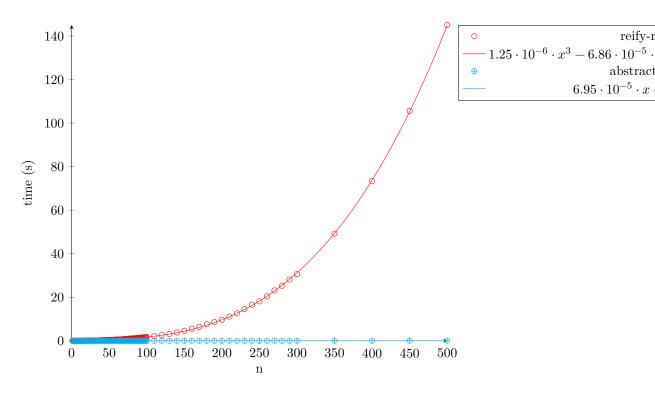


Figure 14: timing-typeclass-reification-let-in-PHOAS