

Figure 1: timing-pattern

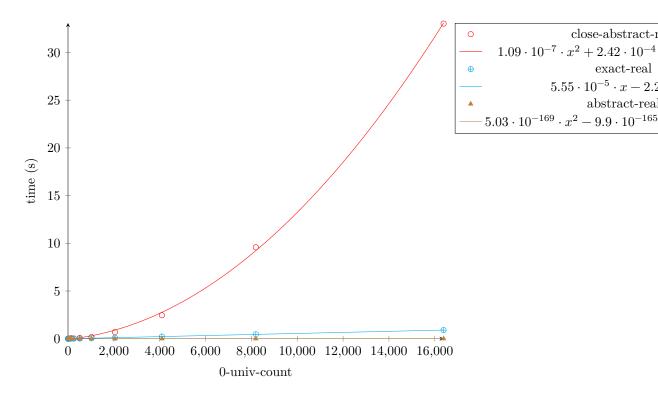


Figure 2: timing-n-polymorphic-universes param-1-n $\,0\,$

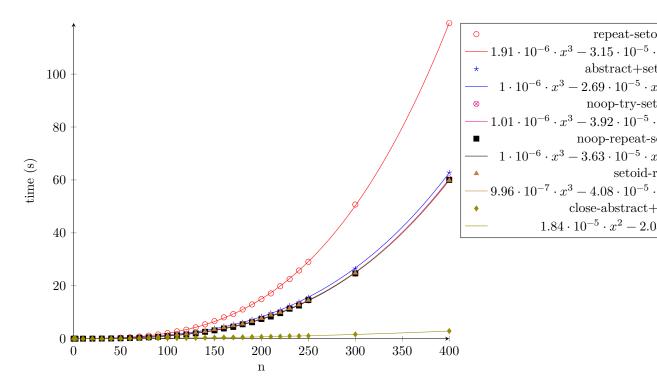


Figure 3: timing-repeat-setoid-rewrite-under-binders

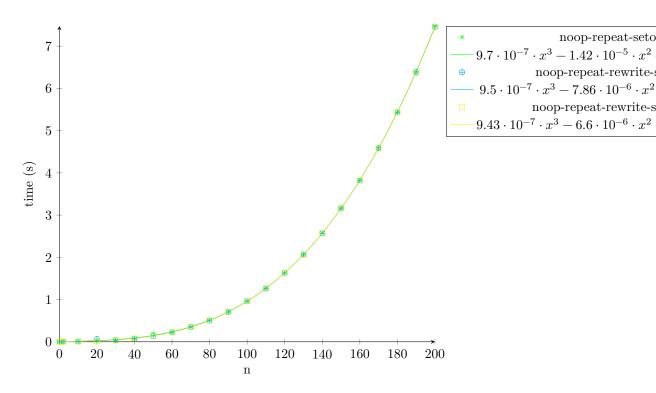
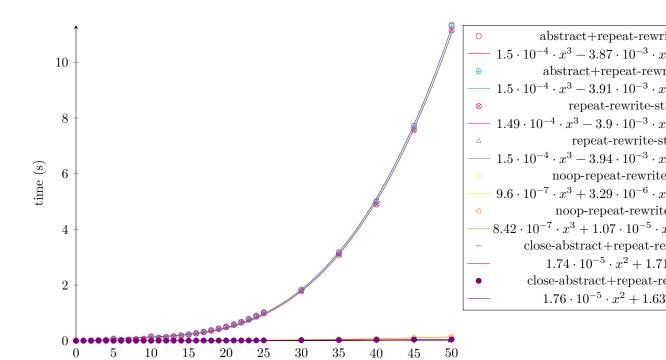


Figure 4: timing-repeat-setoid-rewrite-under-binders-noop



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

 \mathbf{n}

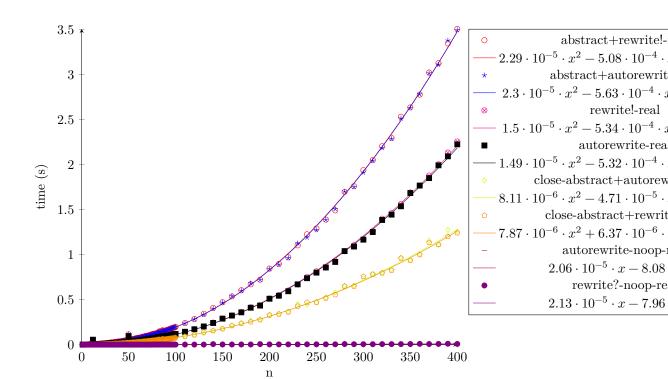
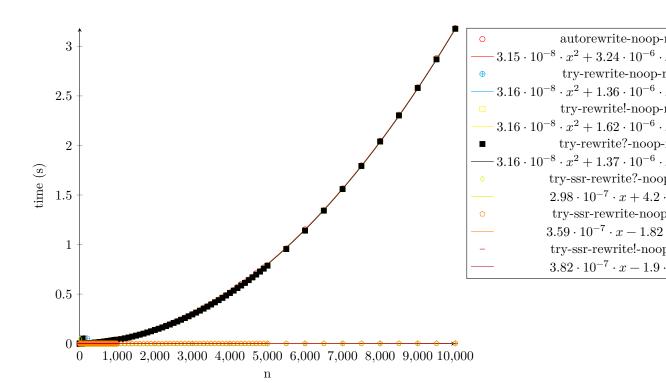
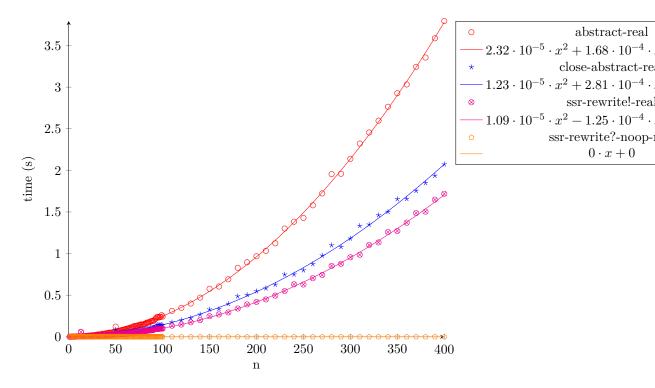


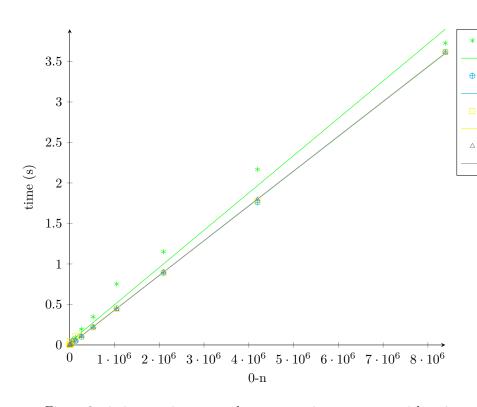
Figure 6: timing-rewrite-repeated-app-autorewrite



 $Figure~7:~timing\mbox{-rewrite-repeated-app-autorewrite-noop}$



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



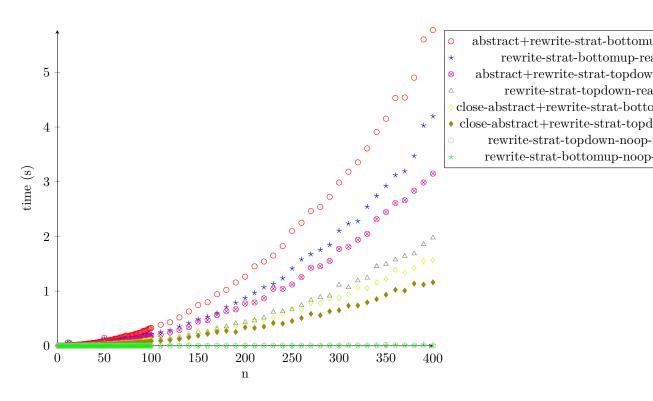
try-ssr-rewrite!-cold-noop-rea $4.6 \cdot 10^{-7} \cdot x + 3.56 \cdot 10^{-2}$

try-ssr-rewrite?-noop-real $4.29\cdot 10^{-7}\cdot x - 1.75\cdot 10^{-3}$

try-ssr-rewrite!-noop-real $4.29\cdot 10^{-7}\cdot x + 2.79\cdot 10^{-3}$

try-ssr-rewrite-noop-real $4.3\cdot 10^{-7}\cdot x - 1.03\cdot 10^{-4}$

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



 $abstract + rewrite - strat - bottom \\ \\$ rewrite-strat-bottomup-real

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

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

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

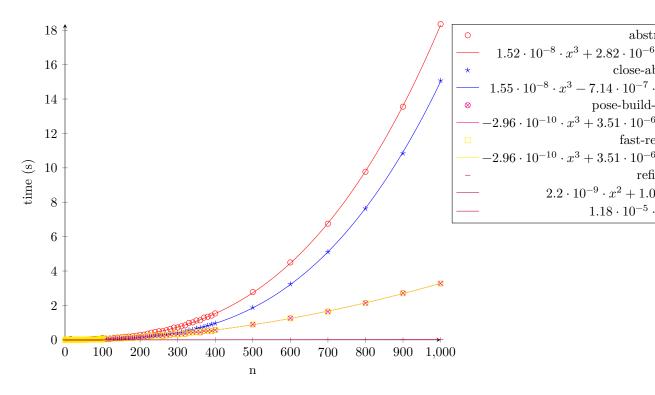
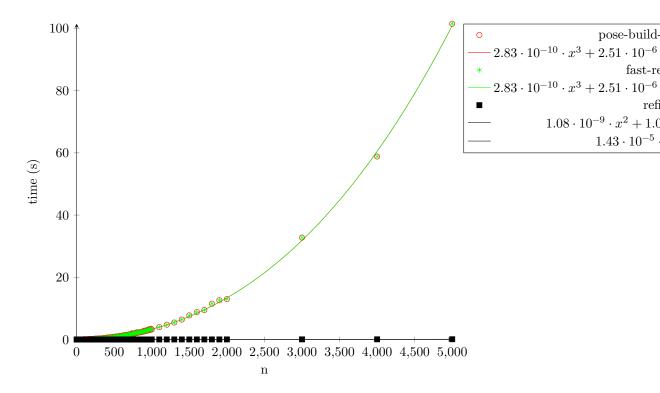


Figure 11: timing-rewrite-repeated-app-fast-rewrite



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

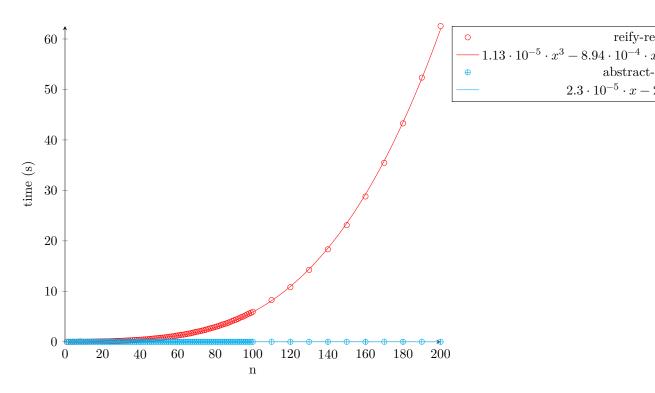


Figure 13: timing-typeclass-reification-let-in-HOAS

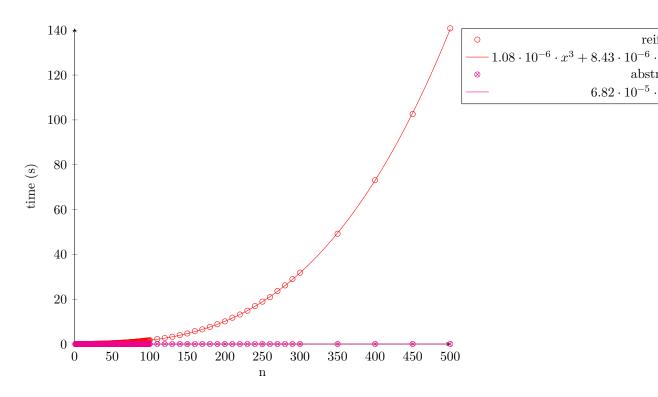


Figure 14: timing-typeclass-reification-let-in-PHOAS