

Figure 1: timing-pattern

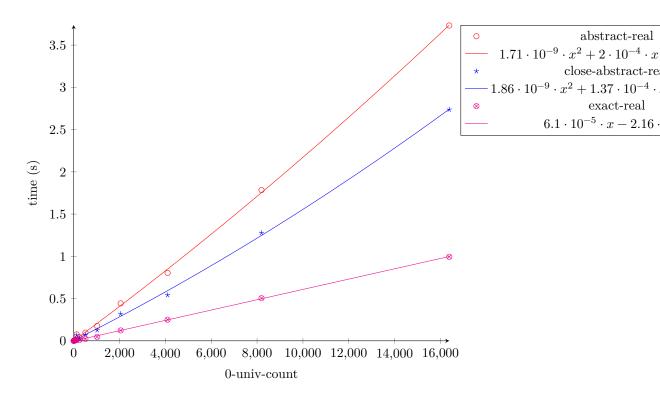
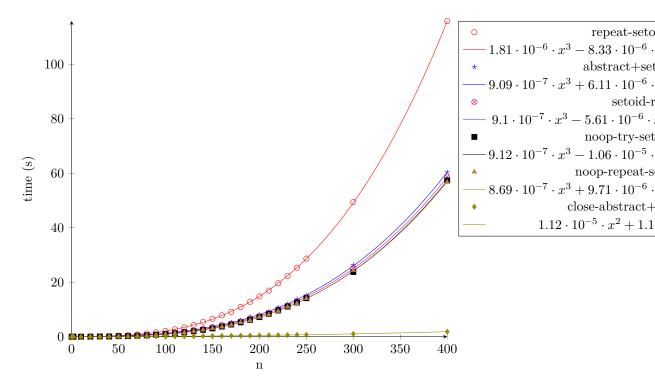
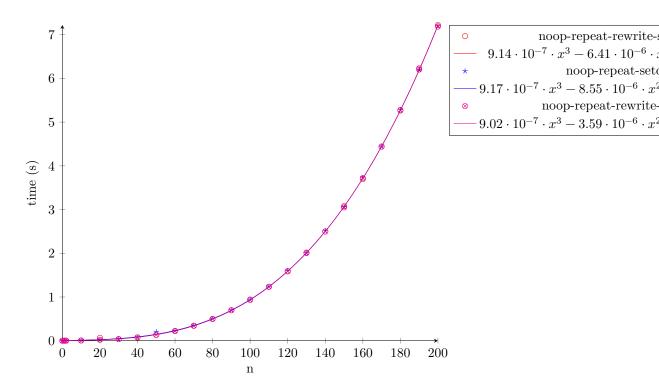


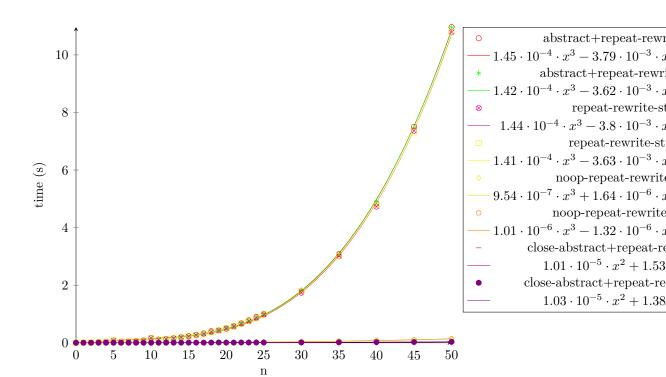
Figure 2: timing-n-polymorphic-universes param-1-n $\,0\,$



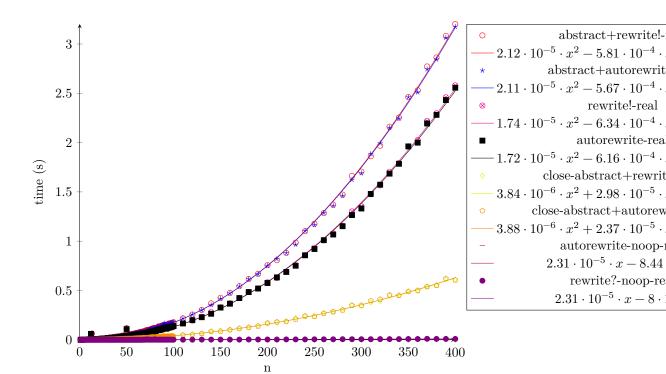
 $Figure \ 3: \ timing-repeat-setoid-rewrite-under-binders$



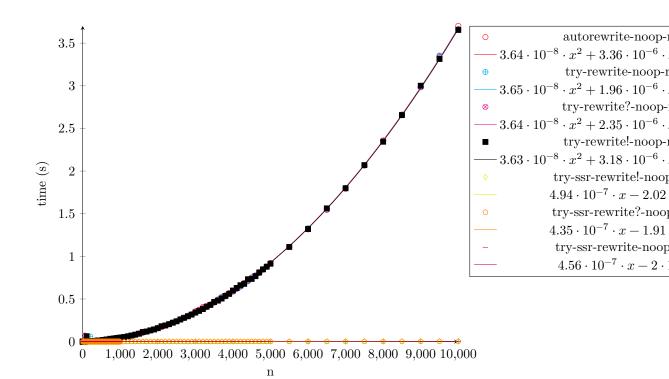
 $Figure\ 4:\ timing-repeat-setoid-rewrite-under-binders-noop$



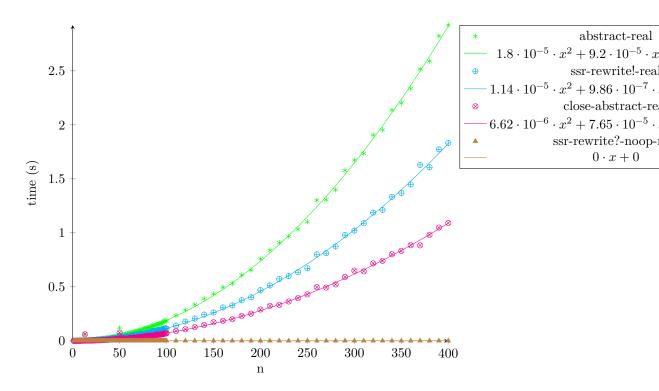
 $Figure\ 5:\ timing-rewrite-strat-under-binders$



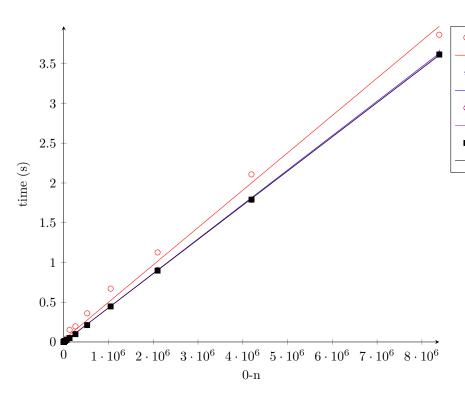
 $Figure \ 6: \ timing-rewrite-repeated-app-autorewrite \\$



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



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



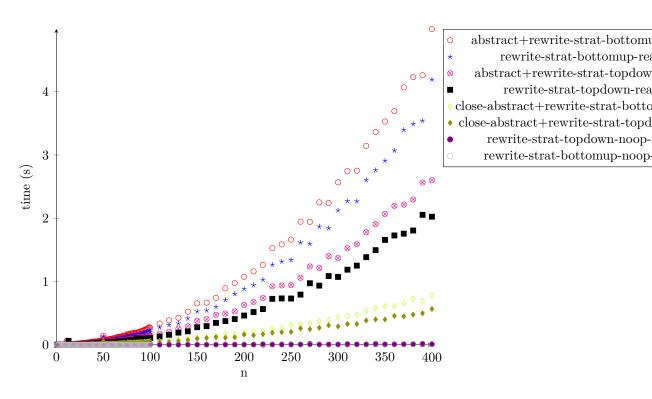
try-ssr-rewrite!-cold-noop-rea $4.7\cdot 10^{-7}\cdot x + 2.91\cdot 10^{-2}$

try-ssr-rewrite?-noop-real $4.33\cdot 10^{-7}\cdot x - 2.54\cdot 10^{-3}$

 $\begin{array}{l} \text{try-ssr-rewrite!-noop-real} \\ 4.31 \cdot 10^{-7} \cdot x - 1.27 \cdot 10^{-3} \\ \text{try-ssr-rewrite-noop-real} \end{array}$

 $4.3\cdot 10^{-7}\cdot x - 2.58\cdot 10^{-3}$

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



 $abstract + rewrite - strat - bottom \\ \\$ rewrite-strat-bottomup-realabstract + rewrite - strat - topdowrewrite-strat-topdown-rea

rewrite-strat-topdown-noop-

rewrite-strat-bottomup-noop-

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

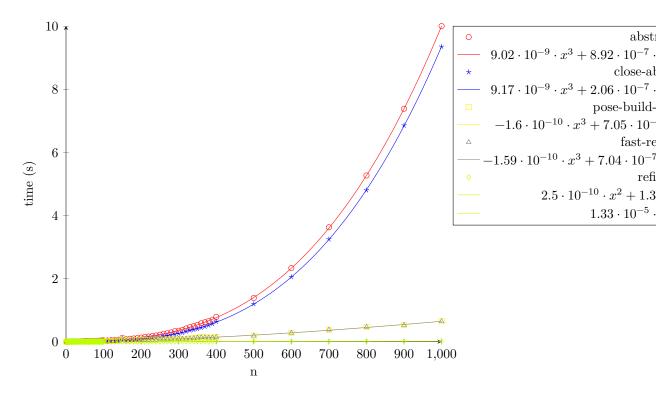
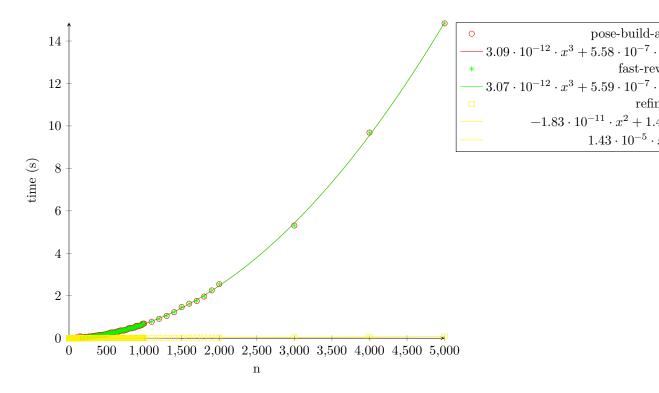


Figure 11: timing-rewrite-repeated-app-fast-rewrite



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

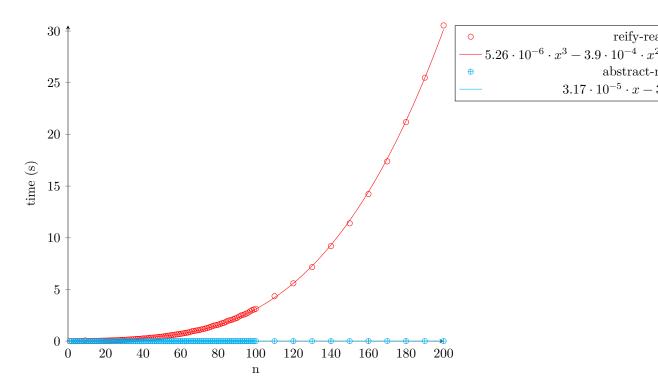


Figure 13: timing-typeclass-reification-let-in-HOAS

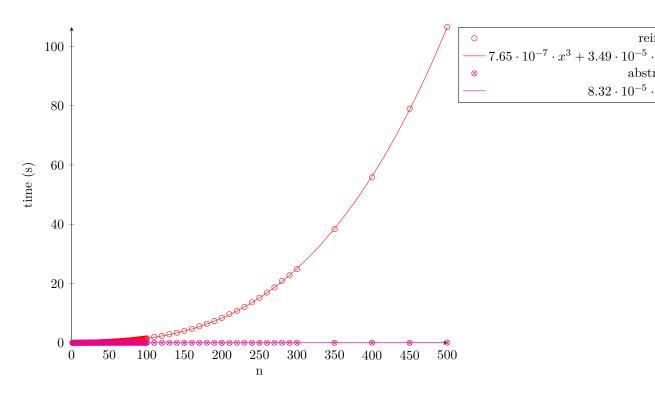


Figure 14: timing-typeclass-reification-let-in-PHOAS

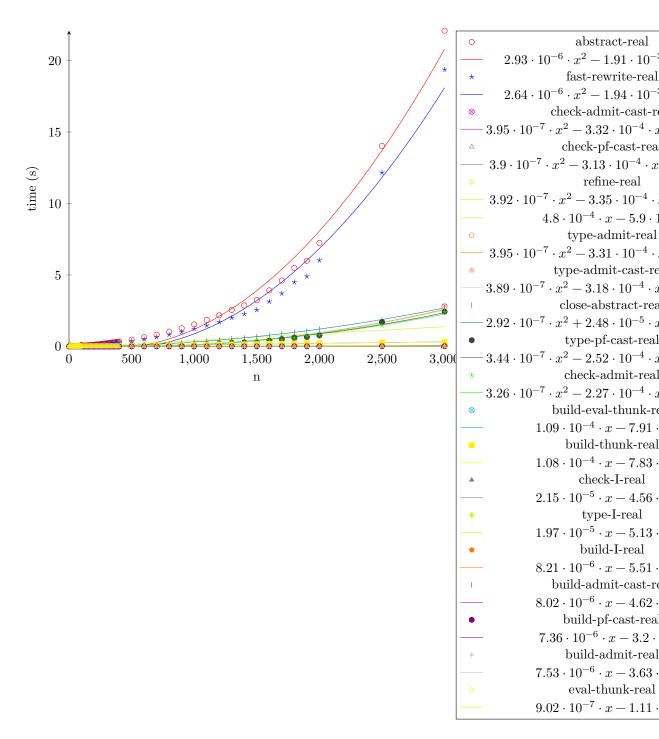


Figure 15: timing-rewrite-repeated-app-fast-rewrite-ltac2