

Figure 1: timing-pattern

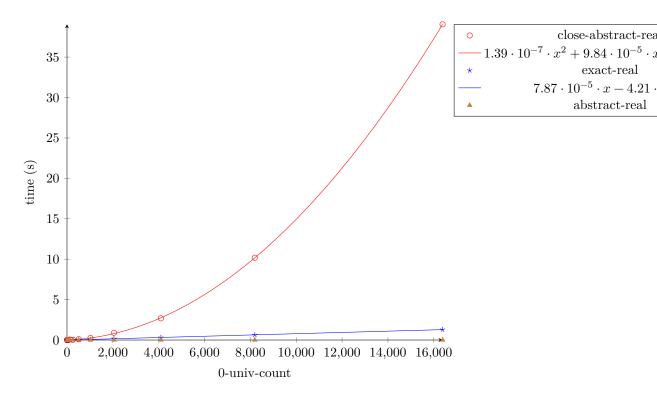


Figure 2: timing-n-polymorphic-universes param-1-n 0

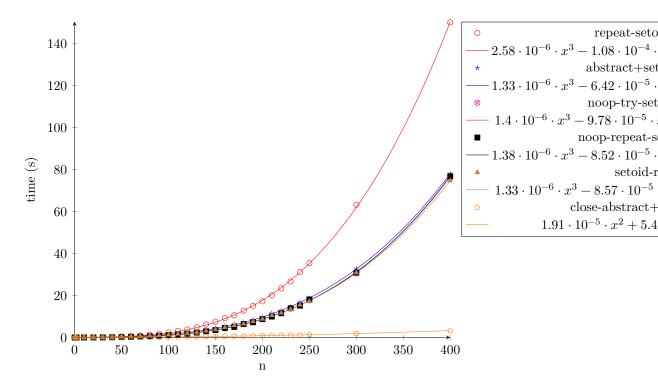
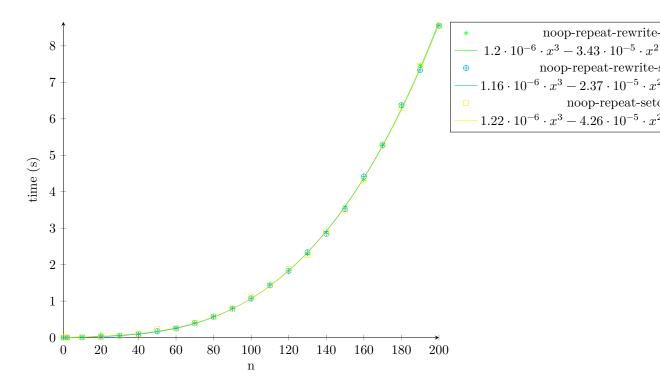
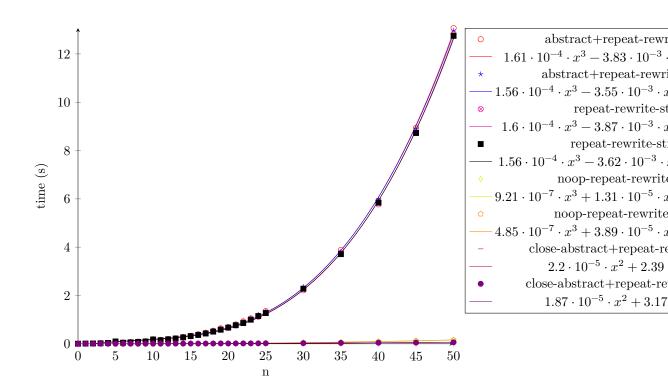


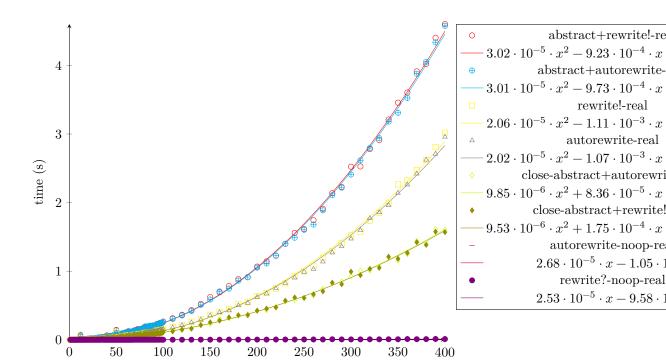
Figure 3: timing-repeat-setoid-rewrite-under-binders



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



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



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

n

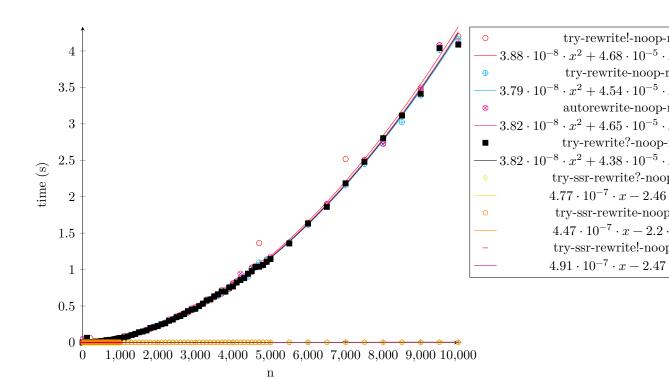
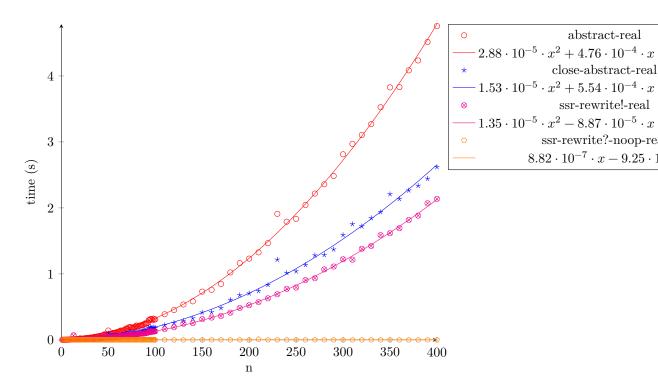
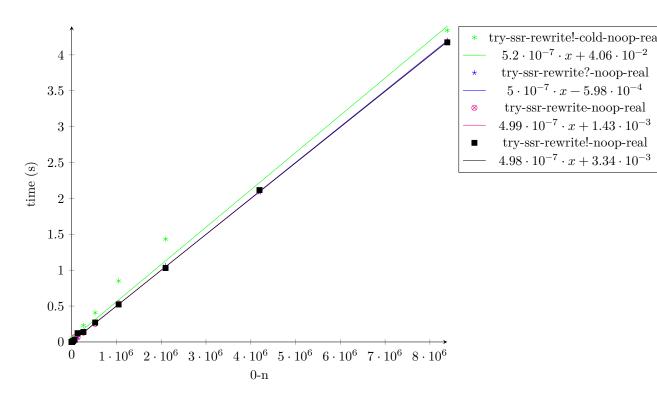


Figure 7: timing-rewrite-repeated-app-autorewrite-noop



Figure~8:~timing-rewrite-repeated-app-ssrrewrite



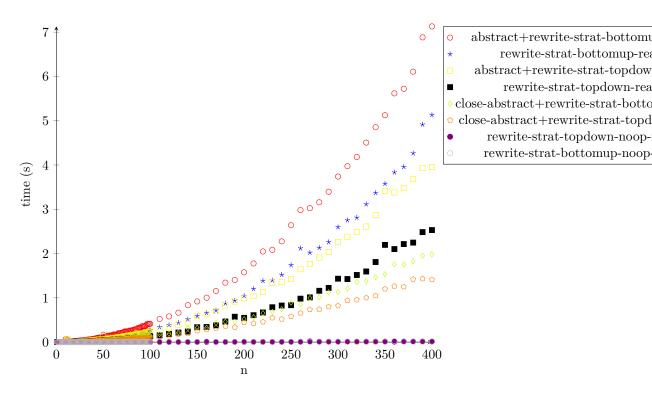
 $5.2 \cdot 10^{-7} \cdot x + 4.06 \cdot 10^{-2}$

try-ssr-rewrite?-noop-real $5\cdot 10^{-7}\cdot x - 5.98\cdot 10^{-4}$

try-ssr-rewrite-noop-real $4.99 \cdot 10^{-7} \cdot x + 1.43 \cdot 10^{-3}$

try-ssr-rewrite!-noop-real $4.98 \cdot 10^{-7} \cdot x + 3.34 \cdot 10^{-3}$

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

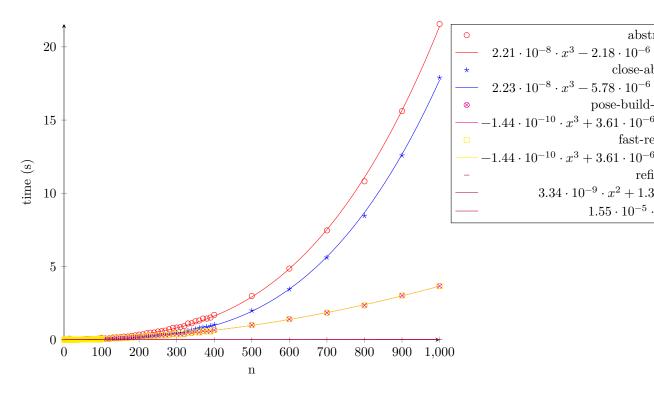


 $abstract + rewrite - strat - bottom \\ \\$ rewrite-strat-bottomup-rea abstract + rewrite - strat - topdow

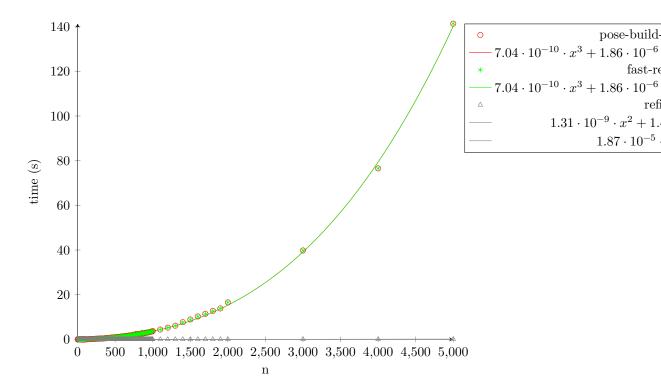
rewrite-strat-topdown-rea

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

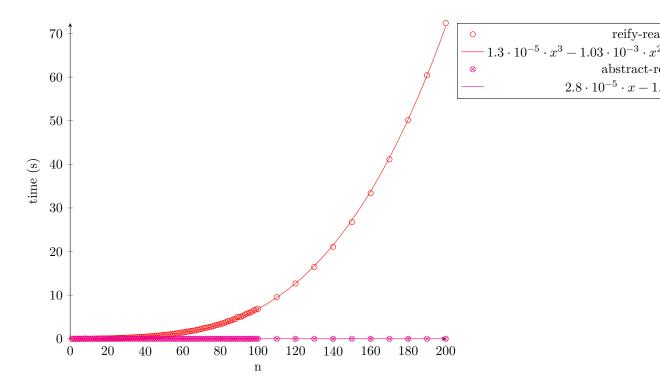
 $Figure\ 10:\ timing-rewrite-repeated-app-rewrite-strat$



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



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



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

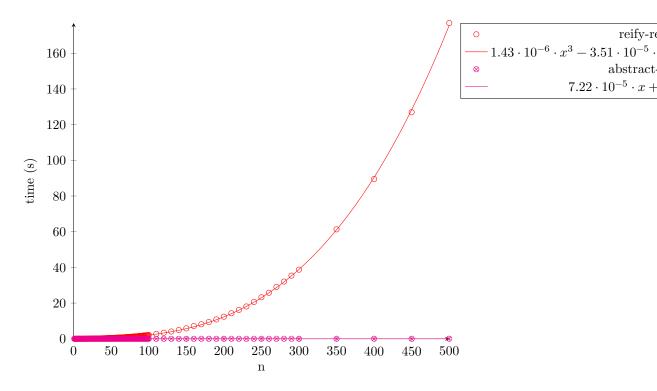


Figure 14: timing-typeclass-reification-let-in-PHOAS