

Figure 1: timing-pattern

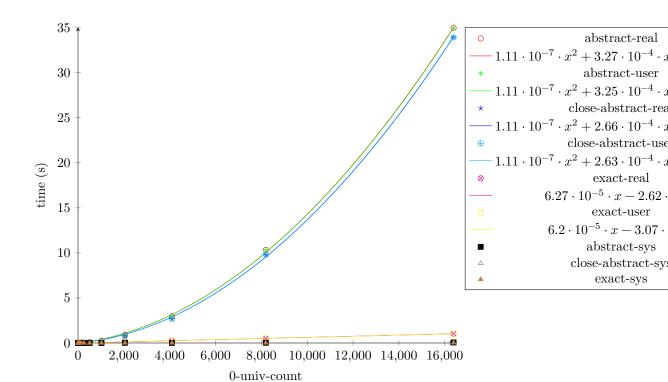


Figure 2: timing-n-polymorphic-universes param-1-n  $\,0\,$ 

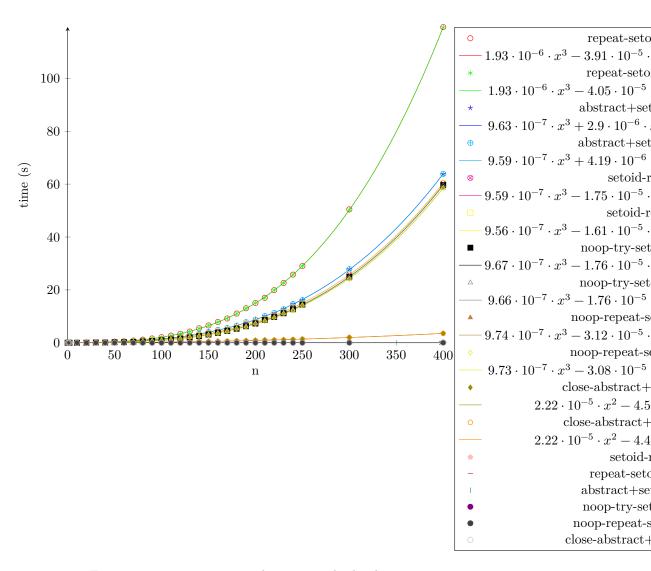
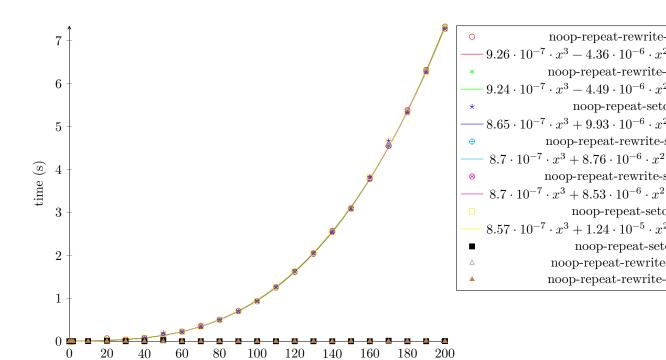


Figure 3: timing-repeat-setoid-rewrite-under-binders



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

 $\mathbf{n}$ 

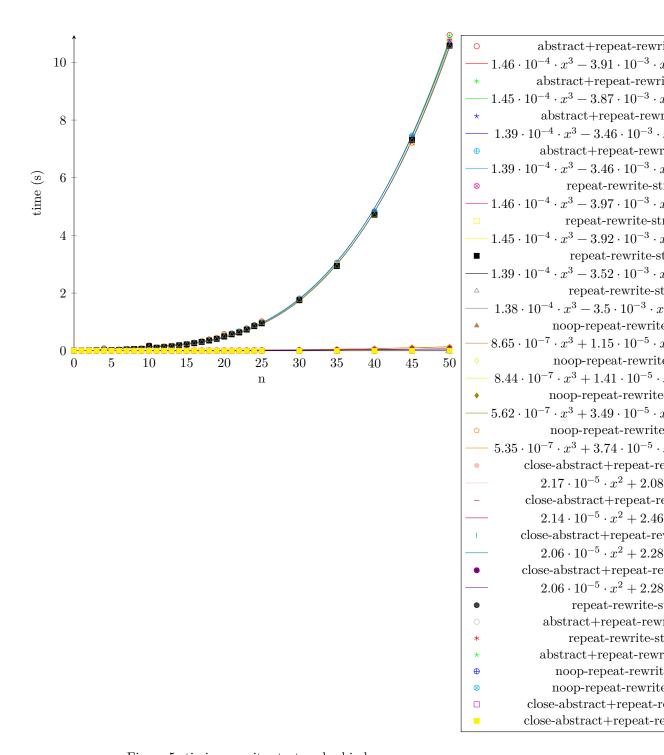
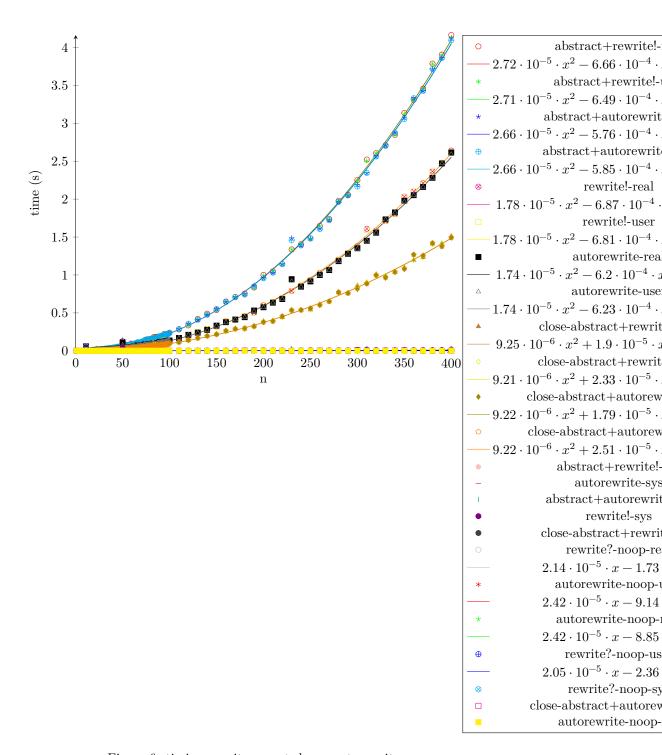


Figure 5: timing-rewrite-strat-under-binders



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

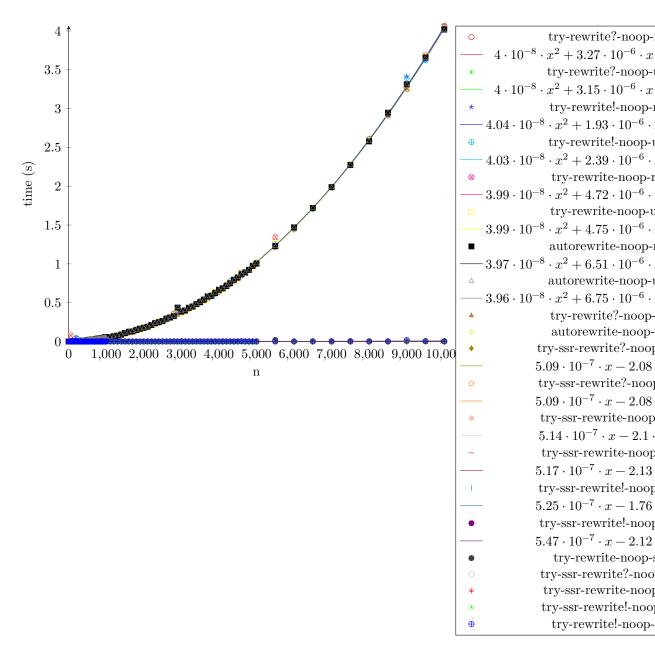


Figure 7: timing-rewrite-repeated-app-autorewrite-noop

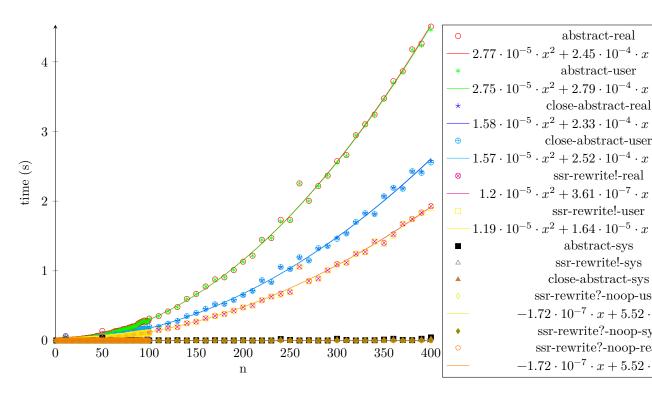


Figure 8: timing-rewrite-repeated-app-ssrrewrite

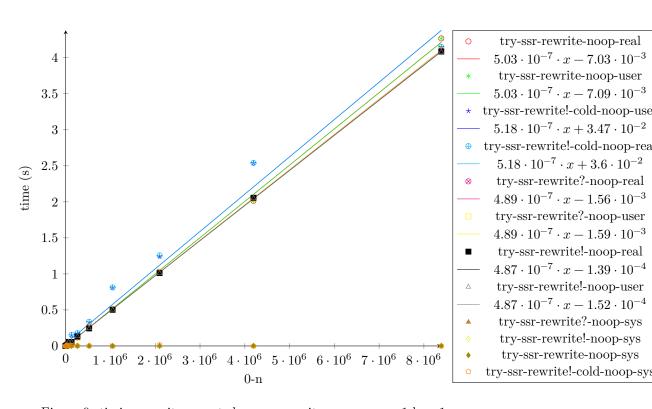


Figure 9: timing-rewrite-repeated-app-ssrrewrite-noop param-1-lgn  $\ 1$ 

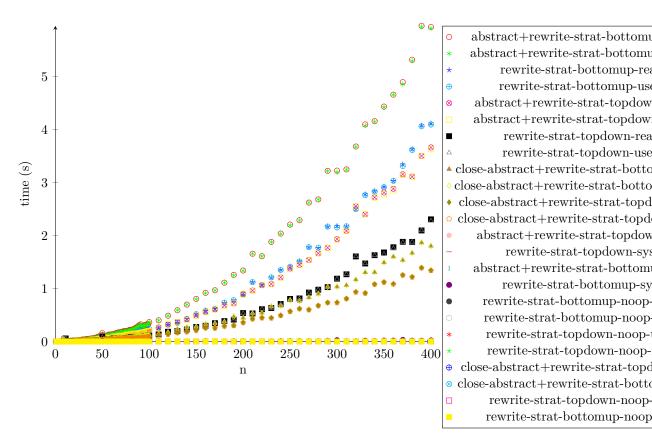


Figure 10: timing-rewrite-repeated-app-rewrite-strat

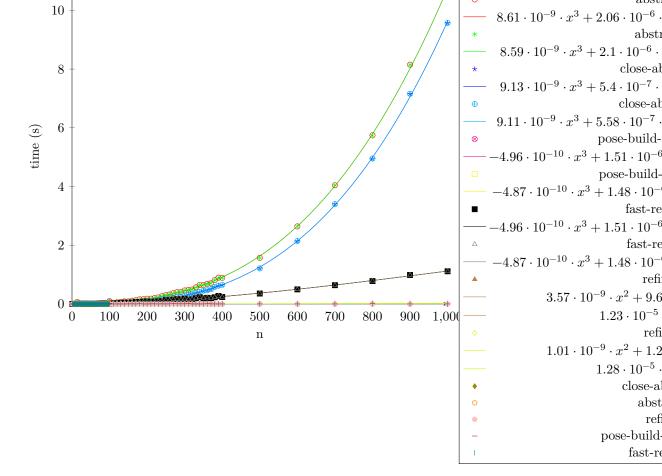
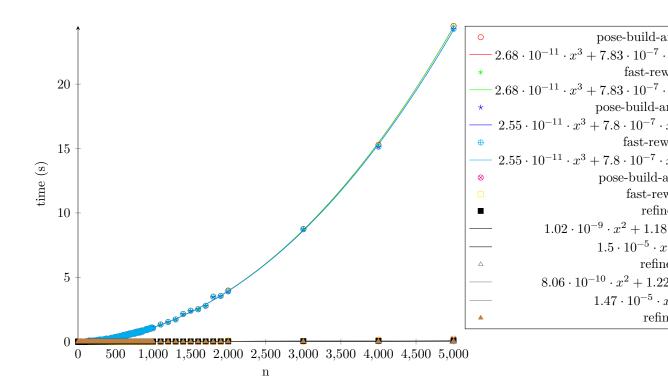
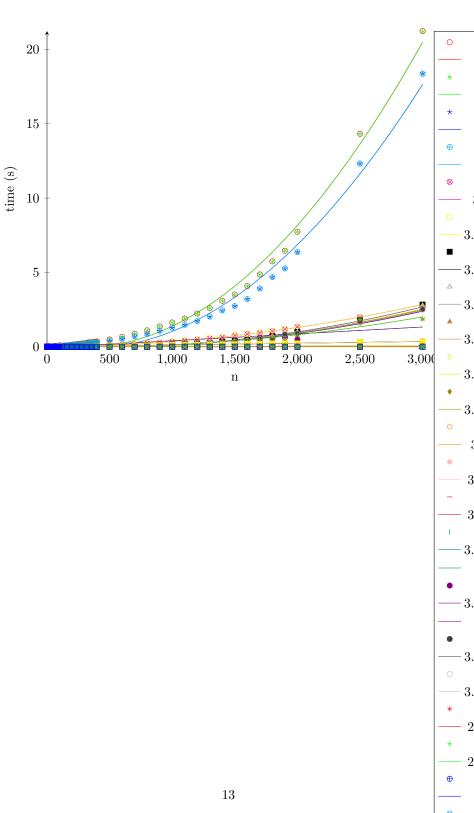


Figure 11: timing-rewrite-repeated-app-fast-rewrite



 ${\bf Figure~12:~timing\text{-}rewrite\text{-}repeated\text{-}app\text{-}fast\text{-}rewrite\text{-}no\text{-}abstract}}$ 



 $2.78 \cdot 10^{-6} \cdot x^2 - 1.54 \cdot 10^{-6}$  $2.77 \cdot 10^{-6} \cdot x^2 - 1.54 \cdot 10^{-6}$  $2.48 \cdot 10^{-6} \cdot x^2 - 1.59 \cdot 10^{-6}$  $2.47 \cdot 10^{-6} \cdot x^2 - 1.59 \cdot 10^{-6}$  $3 \cdot 10^{-7} \cdot x^2 + 4.92 \cdot 10^{-5} \cdot x$  $3.01 \cdot 10^{-7} \cdot x^2 + 4.74 \cdot 10^{-5} \cdot x^2$  $3.97 \cdot 10^{-7} \cdot x^2 - 3.05 \cdot 10^{-4} \cdot x^2$  $3.97 \cdot 10^{-7} \cdot x^2 - 3.05 \cdot 10^{-4} \cdot x^2$  $3.79 \cdot 10^{-7} \cdot x^2 - 2.97 \cdot 10^{-4} \cdot x^2 = 2.97 \cdot 10^{-4} \cdot x^2 + 2.97 \cdot 10^{-4} \cdot x^2$  $3.79 \cdot 10^{-7} \cdot x^2 - 2.97 \cdot 10^{-4} \cdot x^2$  $3.62 \cdot 10^{-7} \cdot x^2 - 2.62 \cdot 10^{-4} \cdot x^2$  $3.61 \cdot 10^{-7} \cdot x^2 - 2.6 \cdot 10^{-4} \cdot x^2$  $3.56 \cdot 10^{-7} \cdot x^2 - 2.6 \cdot 10^{-4} \cdot x$  $3.56 \cdot 10^{-7} \cdot x^2 - 2.6 \cdot 10^{-4} \cdot x$  $3.54 \cdot 10^{-7} \cdot x^2 - 2.73 \cdot 10^{-4} \cdot x^2$  $3.54 \cdot 10^{-7} \cdot x^2 - 2.73 \cdot 10^{-4} \cdot x^2$  $3.55 \cdot 10^{-7} \cdot x^2 - 2.56 \cdot 10^{-4} \cdot x^2$  $3.55 \cdot 10^{-7} \cdot x^2 - 2.58 \cdot 10^{-4} \cdot x^2$  $2.7 \cdot 10^{-7} \cdot x^2 - 1.43 \cdot 10^{-4} \cdot x$  $2.7 \cdot 10^{-7} \cdot x^2 - 1.41 \cdot 10^{-4} \cdot x$ 

abstract-real

abstract-user

fast-rewrite-real

fast-rewrite-user

close-abstract-rea

close-abstract-use

type-admit-cast-re

type-admit-cast-us

check-admit-cast-r

check-admit-cast-u

type-pf-cast-real

type-pf-cast-user

check-pf-cast-rea

check-pf-cast-use

refine-user

 $4.62 \cdot 10^{-4} \cdot x - 5.54 \cdot$ refine-real

 $4.62 \cdot 10^{-4} \cdot x - 5.54 \cdot$ type-admit-real

type-admit-user

check-admit-real

check-admit-user

build-eval-thunk-re

build-thunk-user  $1.18 \cdot 10^{-4} \cdot x - 7.03 \cdot$ obook I was

 $1.19 \cdot 10^{-4} \cdot x - 5.55$