Figure 1: timing-pattern

1

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

The figure legend contains the following entries:

- abstract-real
- $1.94 \cdot 10^{-9} \cdot x^2 + 2.2 \cdot 10^{-4} \cdot x$
- abstract-user
- $1.8 \cdot 10^{-9} \cdot x^2 + 2.16 \cdot 10^{-4} \cdot x$
- close-abstract-real
- $1.79 \cdot 10^{-9} \cdot x^2 + 1.45 \cdot 10^{-4} \cdot x$
- close-abstract-user
- $1.75 \cdot 10^{-9} \cdot x^2 + 1.41 \cdot 10^{-4} \cdot x$
- exact-real
- $7.72 \cdot 10^{-5} \cdot x - 3.89$
- exact-user
- $7.53 \cdot 10^{-5} \cdot x - 4.39$
- abstract-sys
- close-abstract-sys
- exact-sys

Axis labels: time (s), 0-univ-count
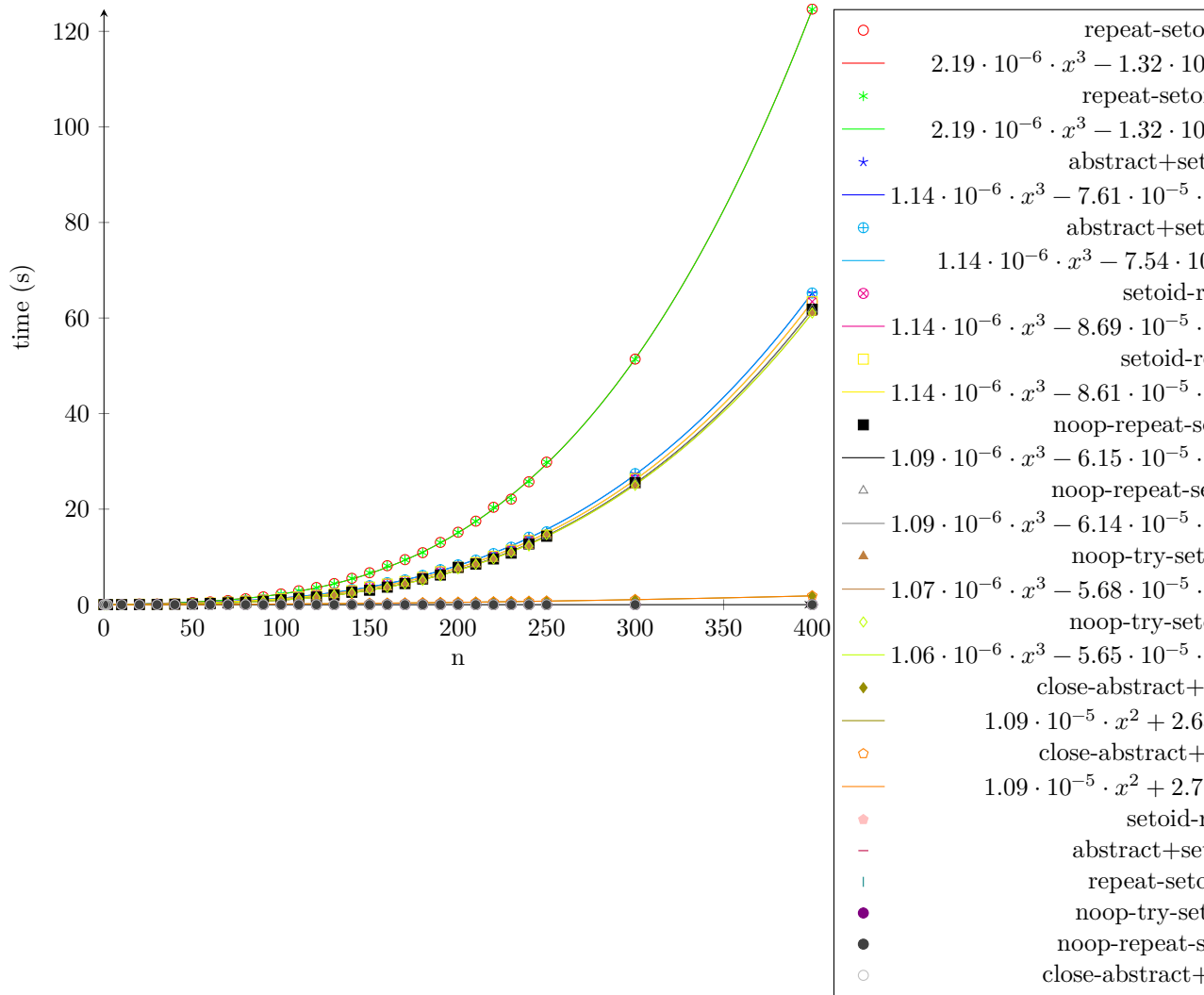
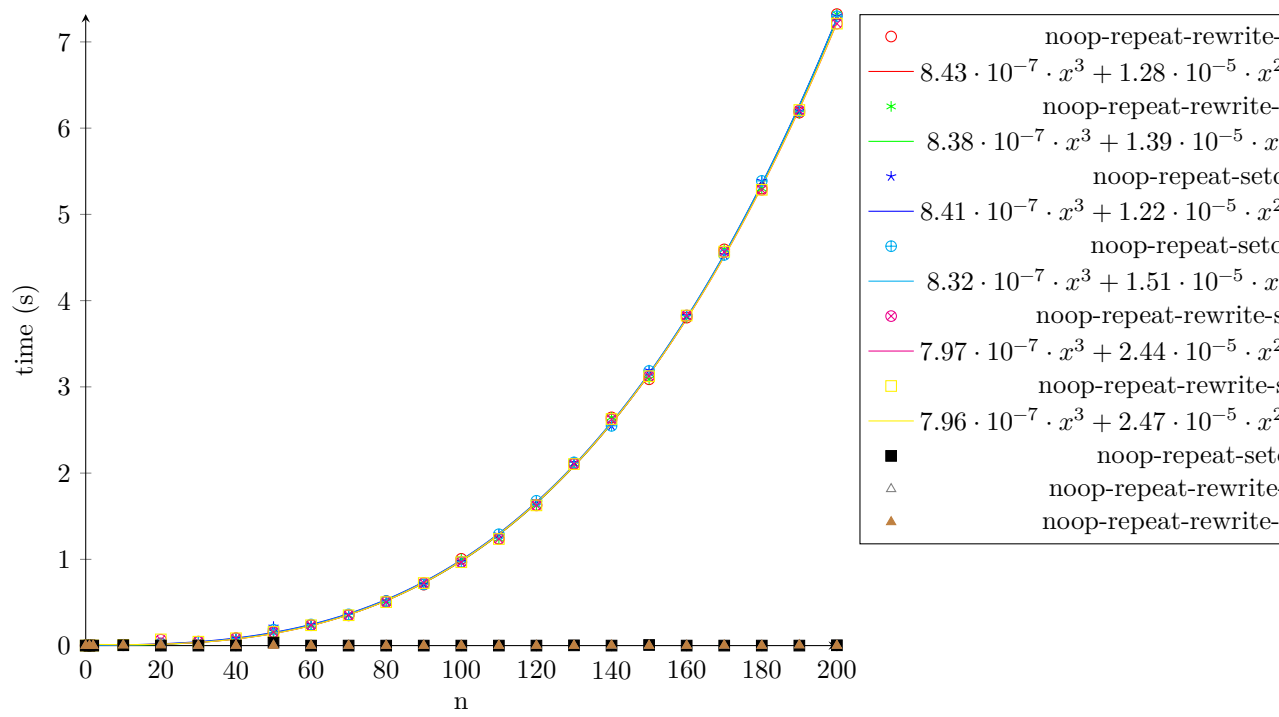Figure 3: timing-repeat-setoid-rewrite-under-binders

Figure 4: timing-repeat-setoid-rewrite-under-binders-noop
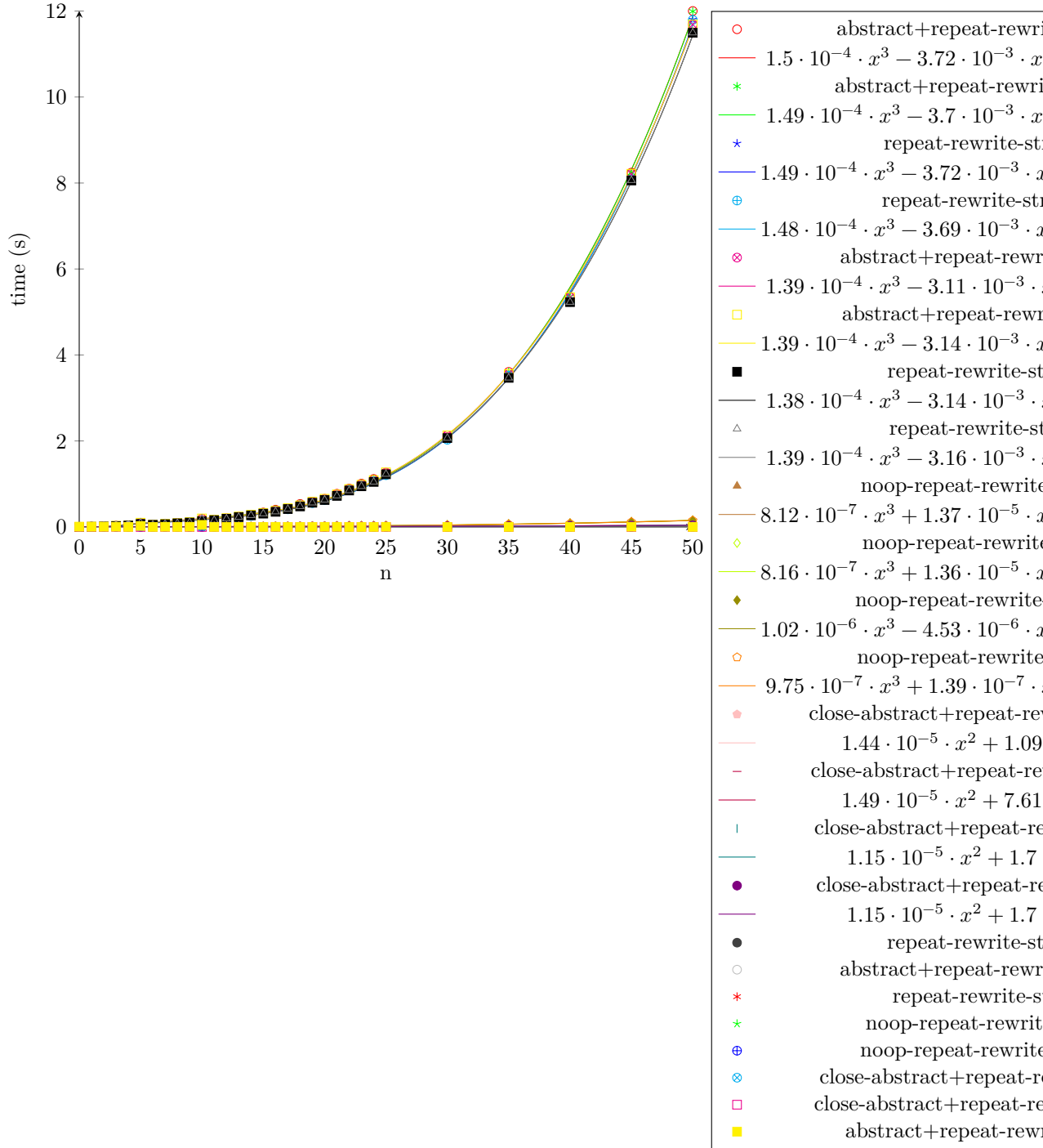
4
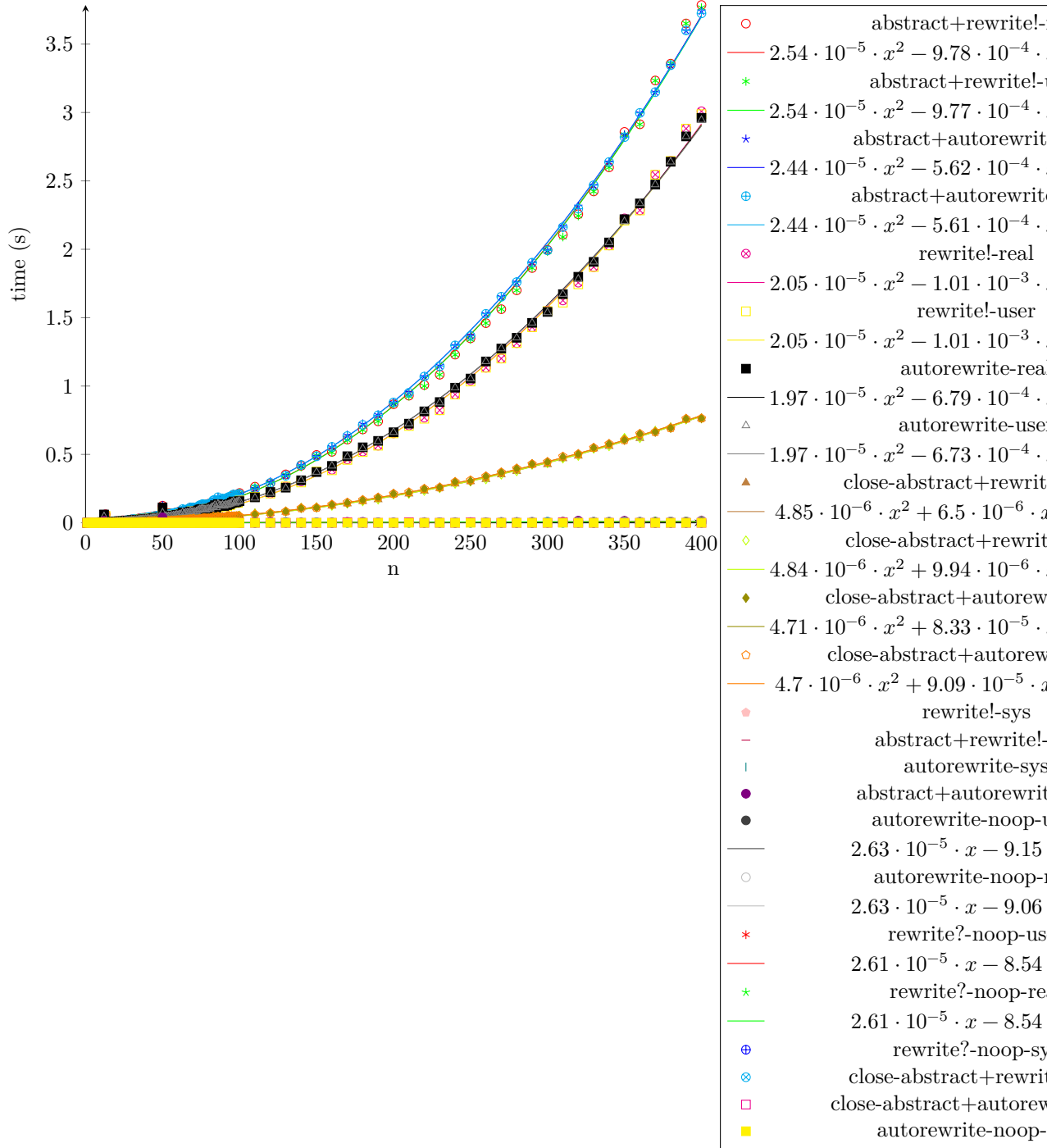
Figure 5: timing-rewrite-strat-under-binders

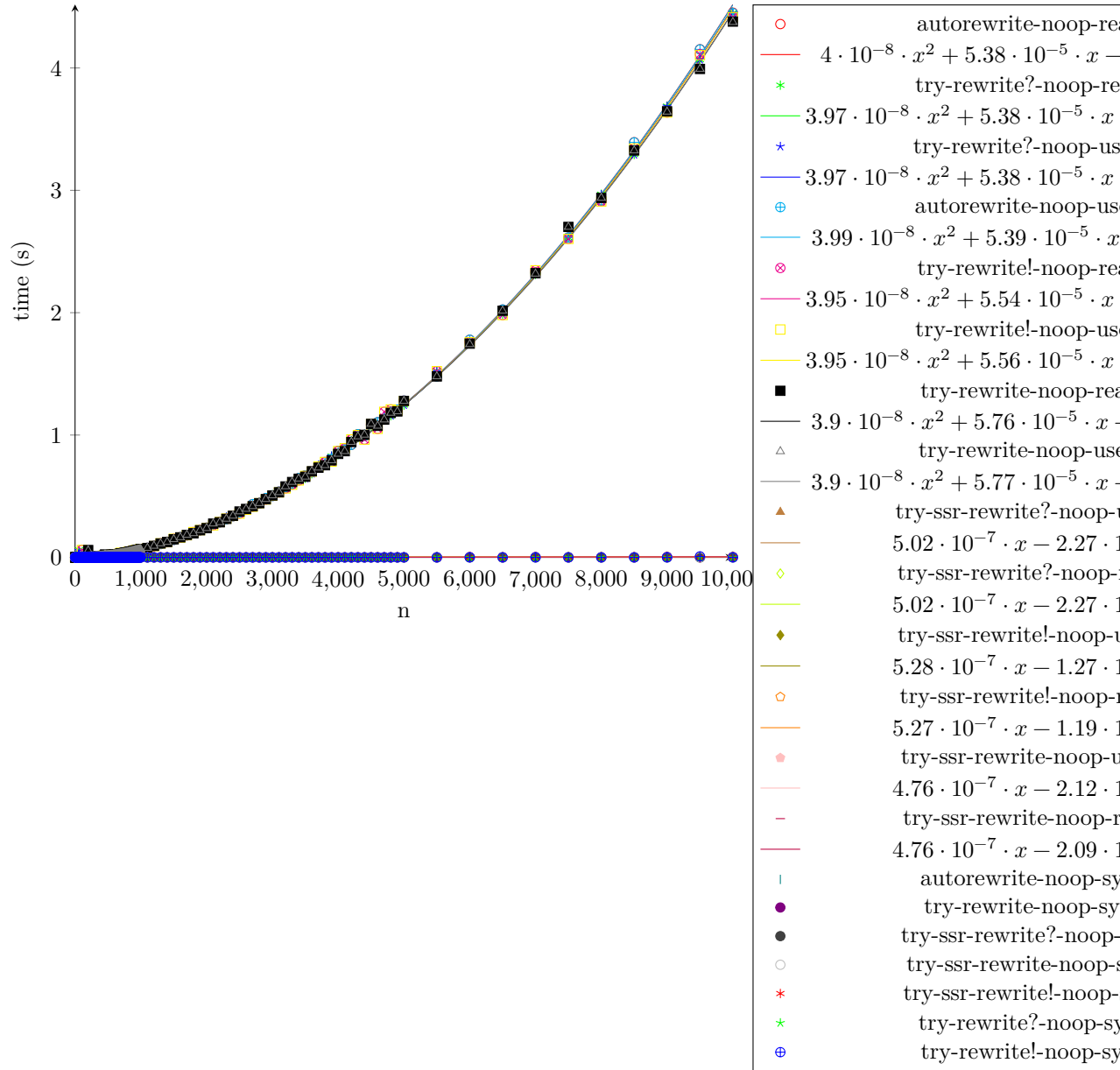Figure 6: timing-rewrite-repeated-app-autorewrite

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

The chart legend contains the following entries:

- autorewrite-noop-rea...
- $4 \cdot 10^{-8} \cdot x^2 + 5.38 \cdot 10^{-5} \cdot x -$
- try-rewrite?-noop-re...
- $3.97 \cdot 10^{-8} \cdot x^2 + 5.38 \cdot 10^{-5} \cdot x$
- try-rewrite?-noop-us...
- $3.97 \cdot 10^{-8} \cdot x^2 + 5.38 \cdot 10^{-5} \cdot x$
- autorewrite-noop-use...
- $3.99 \cdot 10^{-8} \cdot x^2 + 5.39 \cdot 10^{-5} \cdot x$
- try-rewrite!-noop-rea...
- $3.95 \cdot 10^{-8} \cdot x^2 + 5.54 \cdot 10^{-5} \cdot x$
- try-rewrite!-noop-use...
- $3.95 \cdot 10^{-8} \cdot x^2 + 5.56 \cdot 10^{-5} \cdot x$
- try-rewrite-noop-rea...
- $3.9 \cdot 10^{-8} \cdot x^2 + 5.76 \cdot 10^{-5} \cdot x -$
- try-rewrite-noop-use...
- $3.9 \cdot 10^{-8} \cdot x^2 + 5.77 \cdot 10^{-5} \cdot x -$
- try-ssr-rewrite?-noop-u...
- $5.02 \cdot 10^{-7} \cdot x - 2.27 \cdot 1$
- try-ssr-rewrite?-noop-r...
- $5.02 \cdot 10^{-7} \cdot x - 2.27 \cdot 1$
- try-ssr-rewrite!-noop-u...
- $5.28 \cdot 10^{-7} \cdot x - 1.27 \cdot 1$
- try-ssr-rewrite!-noop-r...
- $5.27 \cdot 10^{-7} \cdot x - 1.19 \cdot 1$
- try-ssr-rewrite-noop-u...
- $4.76 \cdot 10^{-7} \cdot x - 2.12 \cdot 1$
- try-ssr-rewrite-noop-r...
- $4.76 \cdot 10^{-7} \cdot x - 2.09 \cdot 1$
- autorewrite-noop-sy...
- try-rewrite-noop-sy...
- try-ssr-rewrite?-noop-...
- try-ssr-rewrite-noop-s...
- try-ssr-rewrite!-noop-...
- try-rewrite?-noop-sy...
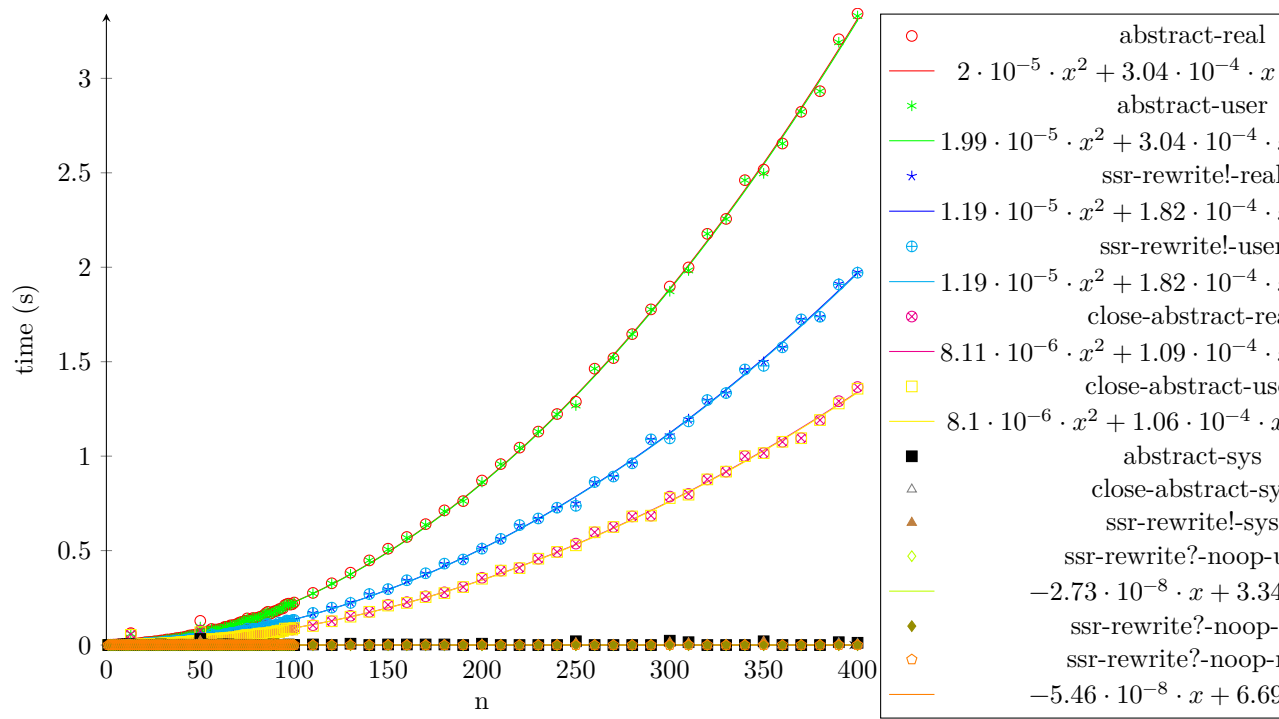- try-rewrite!-noop-sy...

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

8

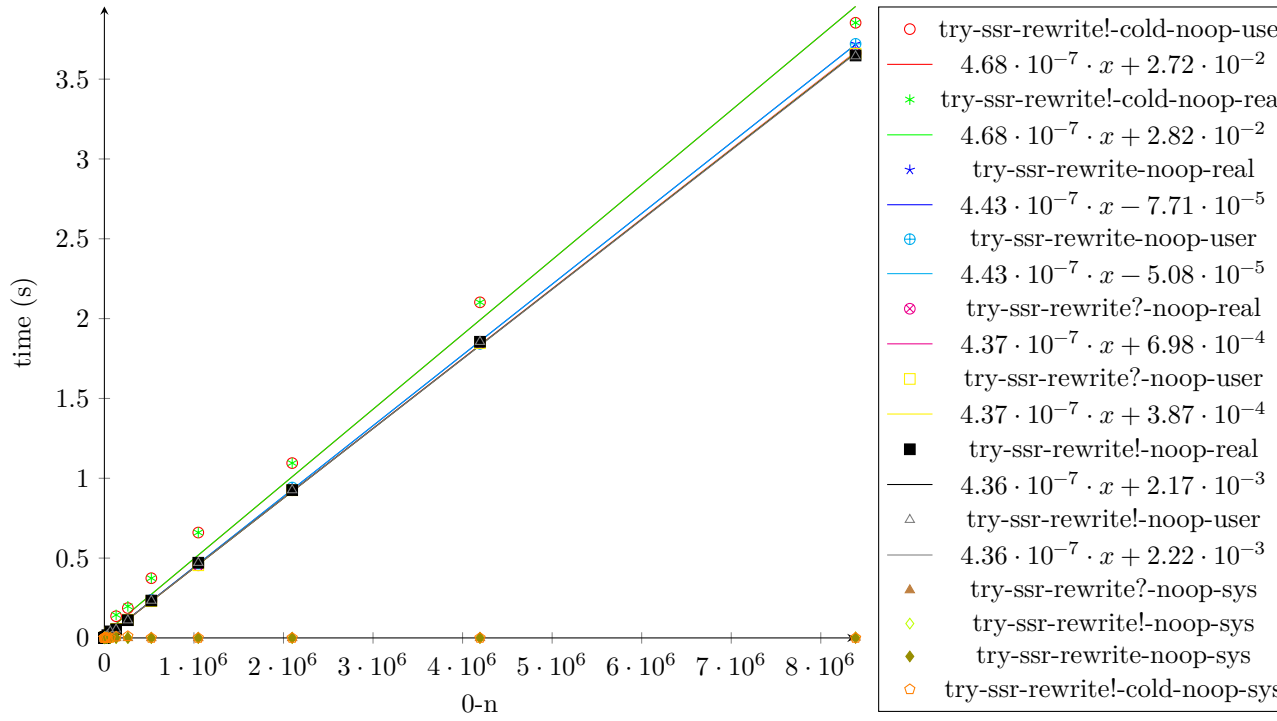Figure 9: timing-rewrite-repeated-app-ssrrewrite-noop param-1-lgn 1
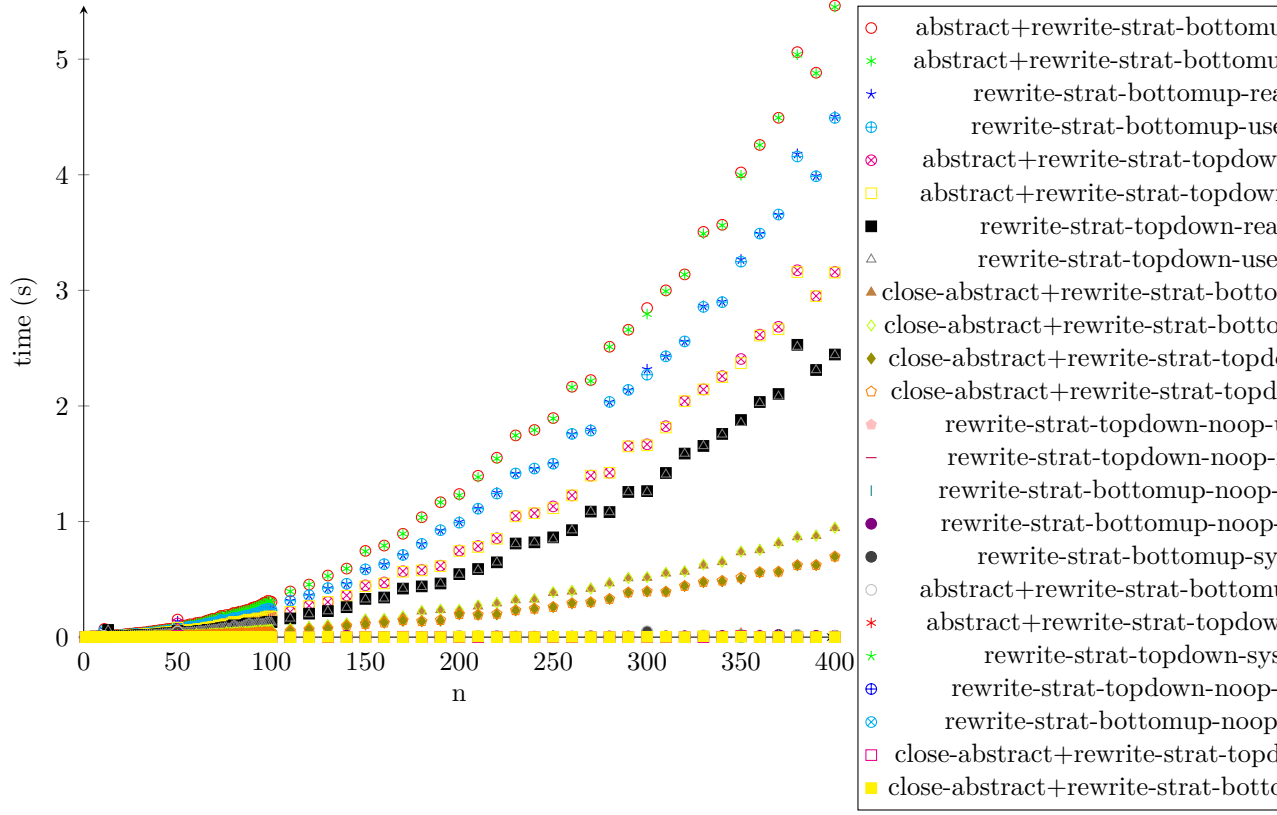
Figure 10: timing-rewrite-repeated-app-rewrite-strat

The legend entries (partially cut off) read:

- abstract+rewrite-strat-bottomu...
- abstract+rewrite-strat-bottomu...
- rewrite-strat-bottomup-rea...
- rewrite-strat-bottomup-use...
- abstract+rewrite-strat-topdow...
- abstract+rewrite-strat-topdow...
- rewrite-strat-topdown-rea...
- rewrite-strat-topdown-use...
- close-abstract+rewrite-strat-botto...
- close-abstract+rewrite-strat-botto...
- close-abstract+rewrite-strat-topd...
- close-abstract+rewrite-strat-topd...
- rewrite-strat-topdown-noop-...
- rewrite-strat-topdown-noop-...
- rewrite-strat-bottomup-noop-...
- rewrite-strat-bottomup-noop-...
- rewrite-strat-bottomup-sy...
- abstract+rewrite-strat-bottom...
- abstract+rewrite-strat-topdow...
- rewrite-strat-topdown-sys...
- rewrite-strat-topdown-noop-...
- rewrite-strat-bottomup-noop...
- close-abstract+rewrite-strat-topd...
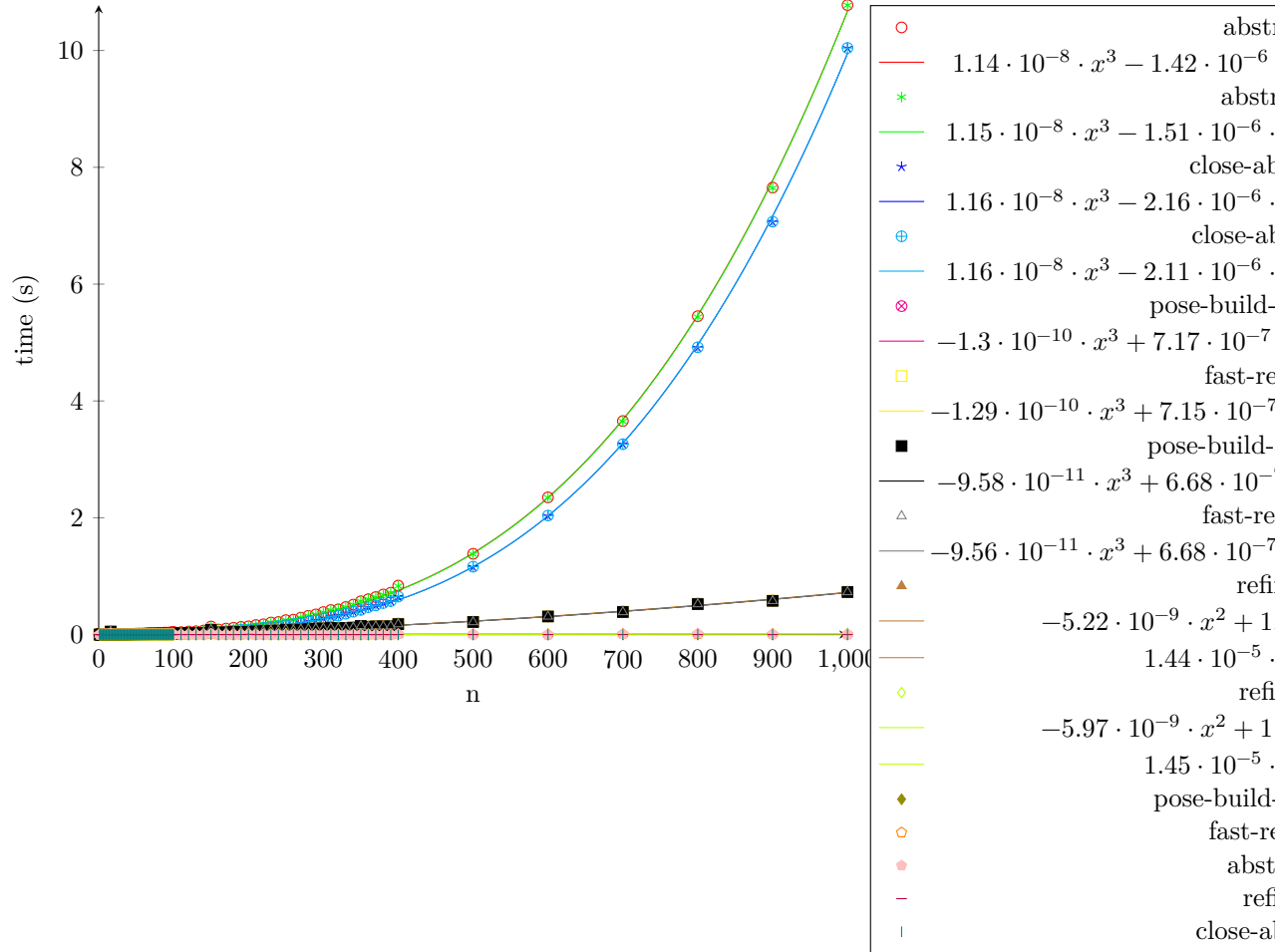- close-abstract+rewrite-strat-botto...

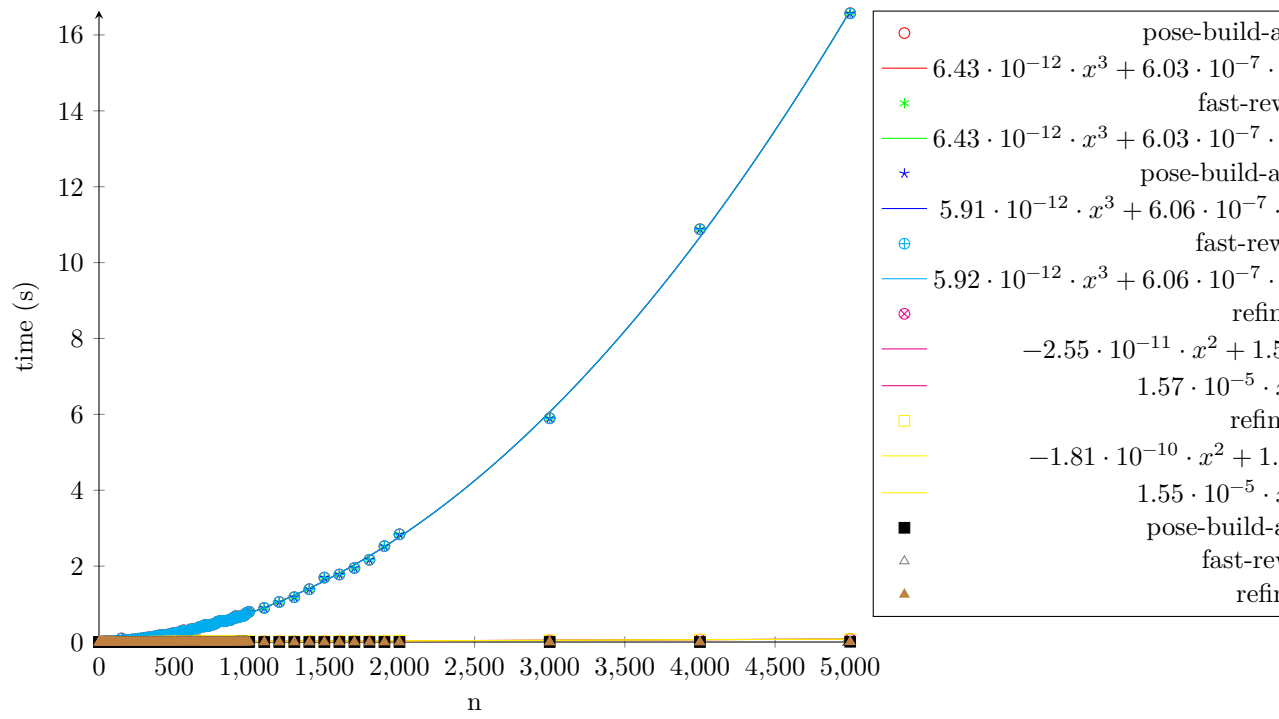Figure 11: timing-rewrite-repeated-app-fast-rewrite

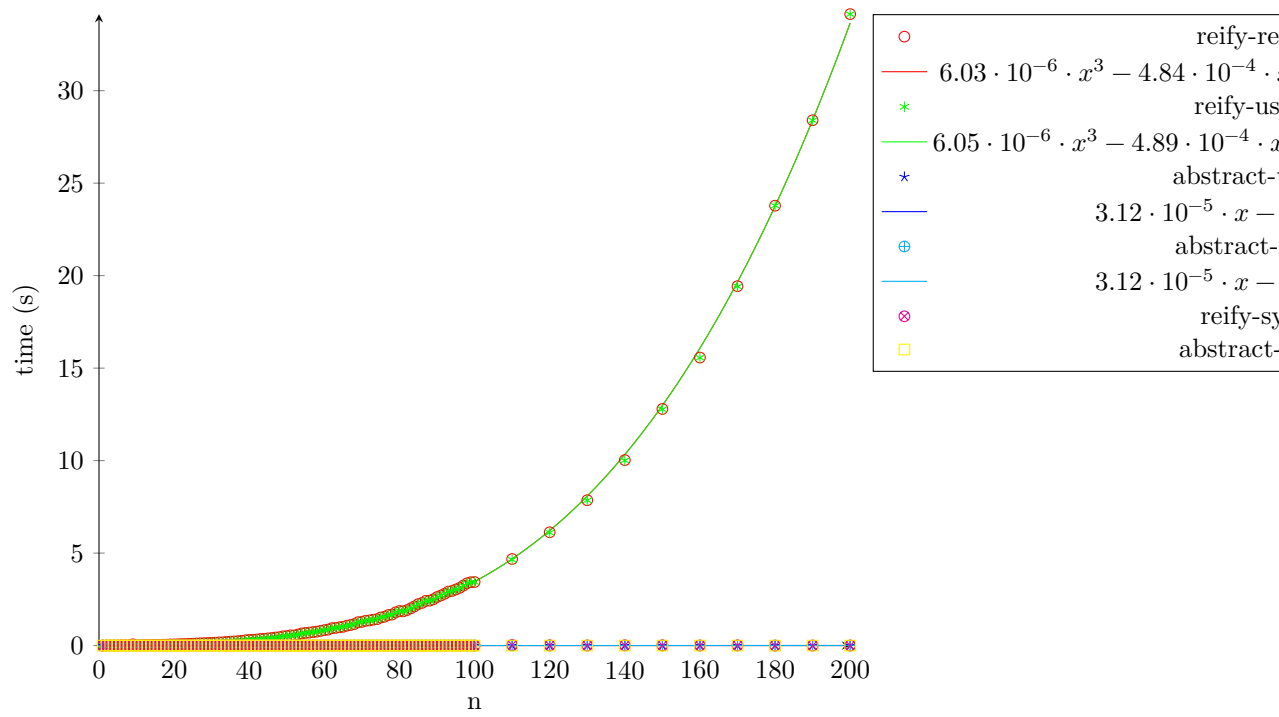Figure 12: timing-rewrite-repeated-app-fast-rewrite-no-abstract
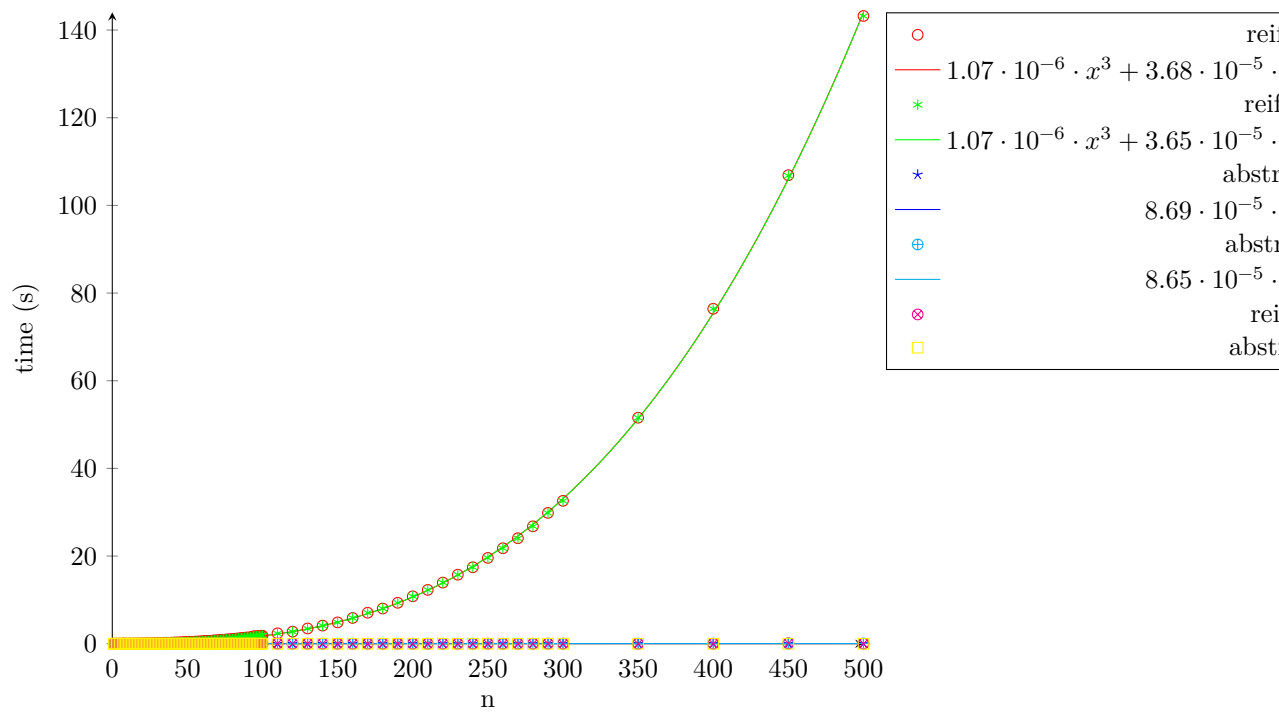
Figure 13: timing-typeclass-reification-let-in-HOAS

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

time (s)

n

abstract-real
$2.33 \cdot 10^{-6} \cdot x^2 + 1.45 \cdot 10^{-4} \cdot x$

abstract-user
$2.33 \cdot 10^{-6} \cdot x^2 + 1.4 \cdot 10^{-4} \cdot x$

fast-rewrite-real
$1.93 \cdot 10^{-6} \cdot x^2 + 1.01 \cdot 10^{-4} \cdot x$

fast-rewrite-user
$1.93 \cdot 10^{-6} \cdot x^2 + 9.82 \cdot 10^{-5} \cdot x$

close-abstract-user
$3.96 \cdot 10^{-7} \cdot x^2 + 4.01 \cdot 10^{-5} \cdot x$

close-abstract-real
$3.96 \cdot 10^{-7} \cdot x^2 + 4.18 \cdot 10^{-5} \cdot x$

check-pf-cast-user
$2.81 \cdot 10^{-7} \cdot x^2 - 1.06 \cdot 10^{-5} \cdot x$

check-pf-cast-real
$2.81 \cdot 10^{-7} \cdot x^2 - 1.04 \cdot 10^{-5} \cdot x$

check-admit-user
$2.88 \cdot 10^{-7} \cdot x^2 - 2.81 \cdot 10^{-5} \cdot x$

check-admit-real
$2.88 \cdot 10^{-7} \cdot x^2 - 2.78 \cdot 10^{-5} \cdot x$

type-pf-cast-user
$2.81 \cdot 10^{-7} \cdot x^2 - 2.78 \cdot 10^{-5} \cdot x$

type-pf-cast-real
$2.81 \cdot 10^{-7} \cdot x^2 - 2.78 \cdot 10^{-5} \cdot x$

type-admit-user
$2.69 \cdot 10^{-7} \cdot x^2 + 1.01 \cdot 10^{-6} \cdot x$

type-admit-real
$2.69 \cdot 10^{-7} \cdot x^2 + 1.09 \cdot 10^{-6} \cdot x$

type-admit-cast-user
$2.67 \cdot 10^{-7} \cdot x^2 + 9.84 \cdot 10^{-6} \cdot x$

type-admit-cast-real
$2.67 \cdot 10^{-7} \cdot x^2 + 1.02 \cdot 10^{-5} \cdot x$

check-admit-cast-user
$2.71 \cdot 10^{-7} \cdot x^2 - 1.6 \cdot 10^{-5} \cdot x$

check-admit-cast-real
$2.71 \cdot 10^{-7} \cdot x^2 - 1.62 \cdot 10^{-5} \cdot x$

refine-user
$2.66 \cdot 10^{-7} \cdot x^2 - 1.11 \cdot 10^{-5} \cdot x$
$5.42 \cdot 10^{-4} \cdot x - 5.84 \cdot$

refine-real
$2.66 \cdot 10^{-7} \cdot x^2 - 1.01 \cdot 10^{-5} \cdot x$
$5.42 \cdot 10^{-4} \cdot x - 5.84 \cdot$

build-eval-thunk-user
$1.21 \cdot 10^{-4} \cdot x - 1.15 \cdot$

build-eval-thunk-real
$1.21 \cdot 10^{-4} \cdot x - 9.33 \cdot$

build-thunk-user
$1.2 \cdot 10^{-4} \cdot x - 1.18 \cdot$

build-thunk-real
$1.2 \cdot 10^{-4} \cdot x - 9.64 \cdot$

check-L-user