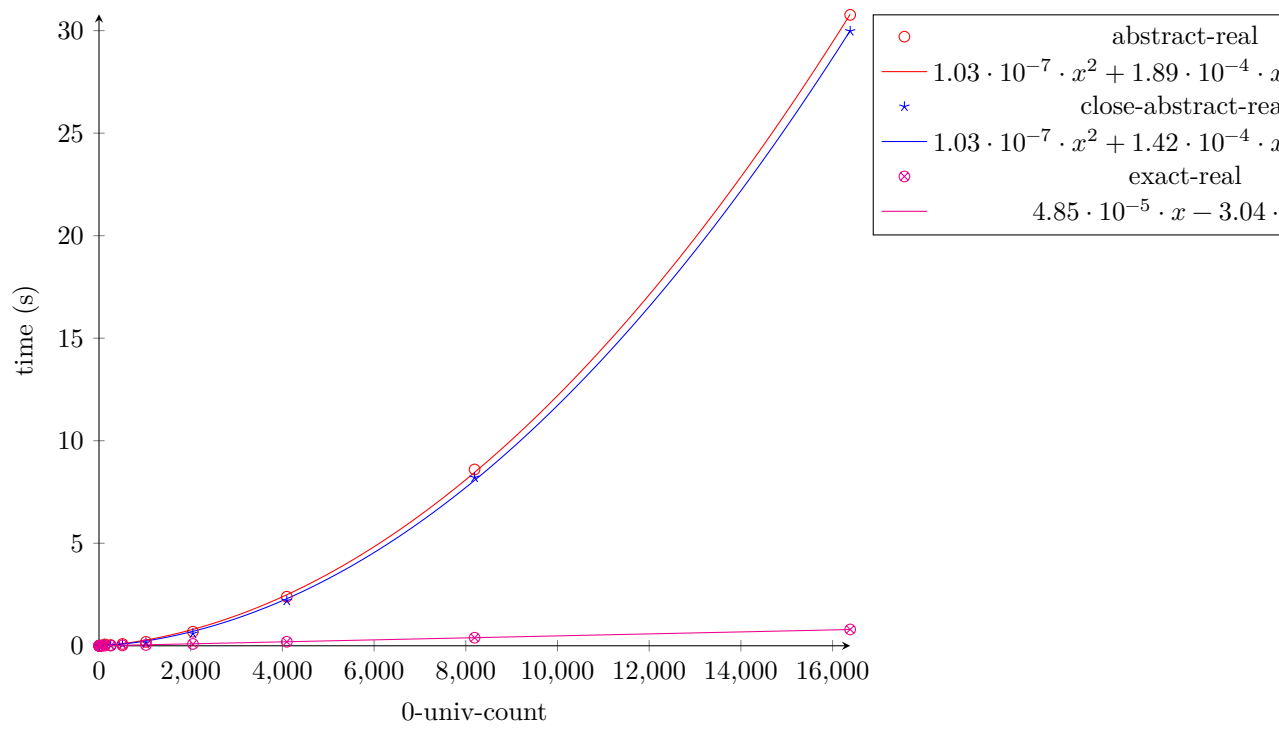Figure 1: timing-pattern

Figure 2: timing-n-polymorphic-universes param-1-n 0
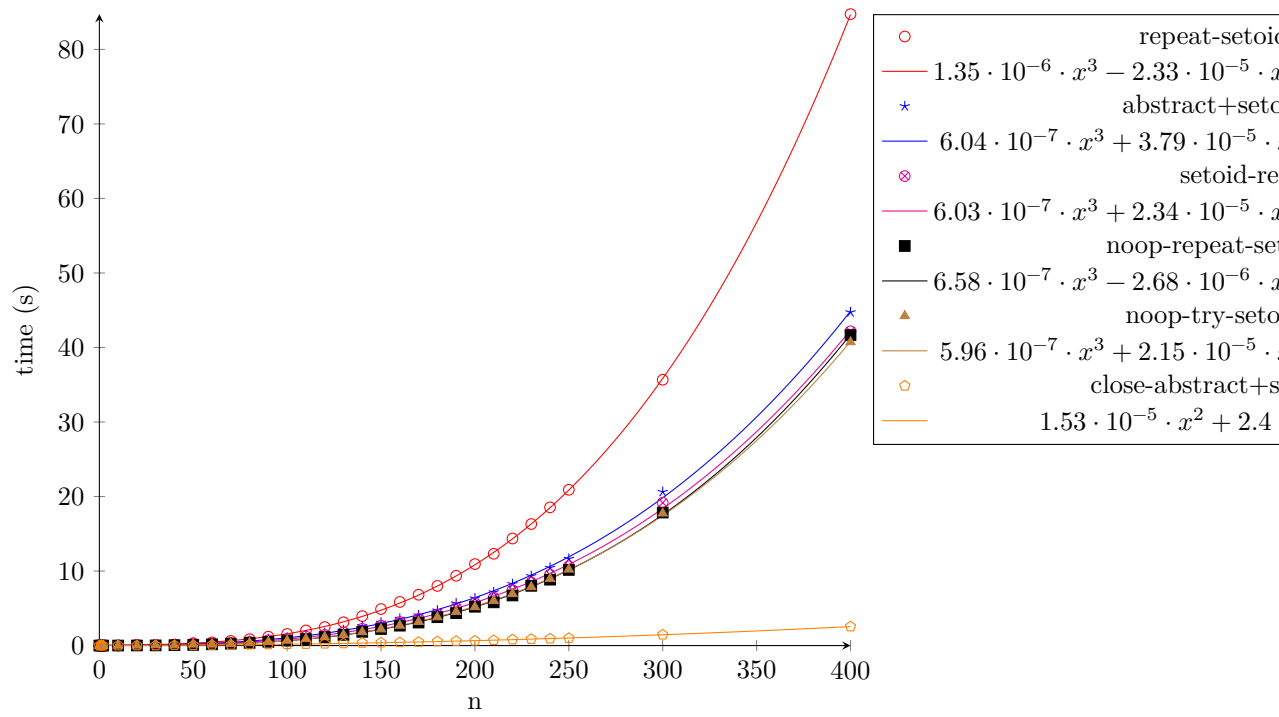
Figure 3: timing-repeat-setoid-rewrite-under-binders
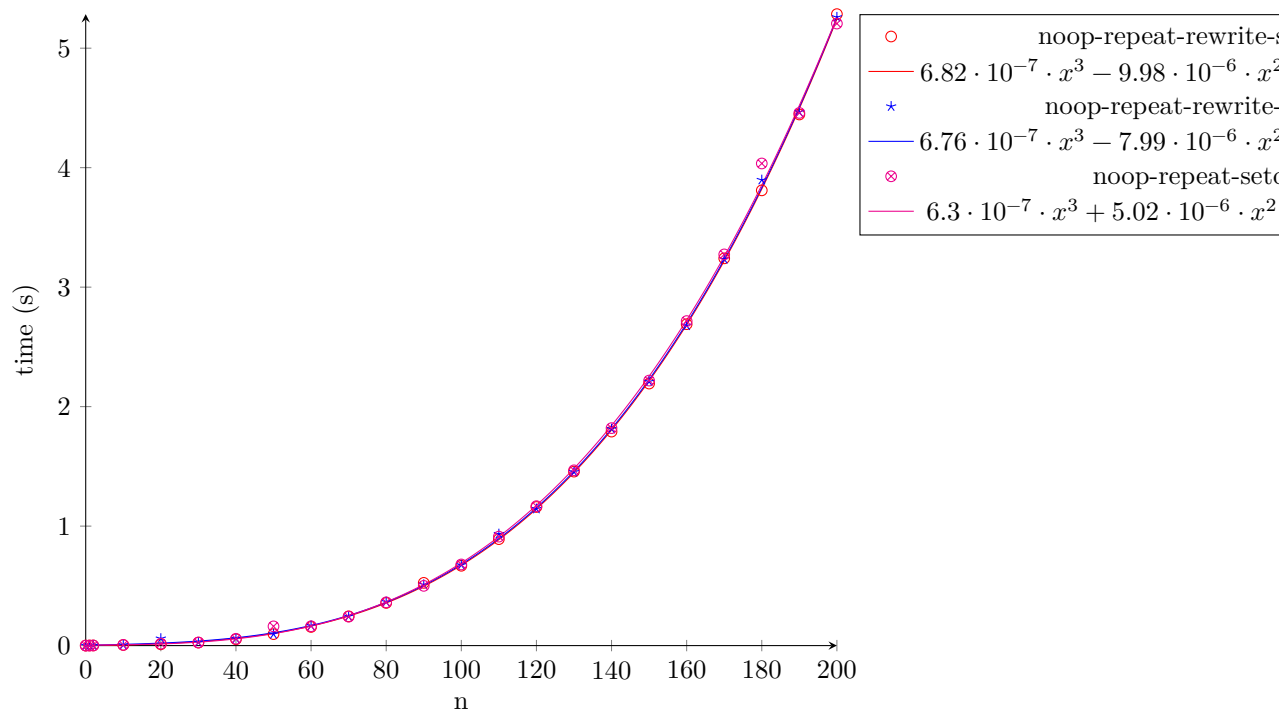
Figure 4: timing-repeat-setoid-rewrite-under-binders-noop

The legend contains the following entries:

noop-repeat-rewrite-s...
$6.82 \cdot 10^{-7} \cdot x^3 - 9.98 \cdot 10^{-6} \cdot x^2$

noop-repeat-rewrite-...
$6.76 \cdot 10^{-7} \cdot x^3 - 7.99 \cdot 10^{-6} \cdot x^2$

noop-repeat-seto...
$6.3 \cdot 10^{-7} \cdot x^3 + 5.02 \cdot 10^{-6} \cdot x^2$

time (s)

n

abstract+repeat-rewrit

$1.03 \cdot 10^{-4} \cdot x^3 - 2.61 \cdot 10^{-3} \cdot x^2$

abstract+repeat-rewrit

$9.81 \cdot 10^{-5} \cdot x^3 - 2.3 \cdot 10^{-3} \cdot x^2$

repeat-rewrite-stra

$1.02 \cdot 10^{-4} \cdot x^3 - 2.63 \cdot 10^{-3} \cdot x$

repeat-rewrite-str

$9.72 \cdot 10^{-5} \cdot x^3 - 2.31 \cdot 10^{-3} \cdot x^2$

noop-repeat-rewrite-

$7.92 \cdot 10^{-7} \cdot x^3 - 4.34 \cdot 10^{-6} \cdot x^2$

noop-repeat-rewrite-s

$6.29 \cdot 10^{-7} \cdot x^3 + 3.22 \cdot 10^{-6} \cdot x^2$

close-abstract+repeat-rev

$1.57 \cdot 10^{-5} \cdot x^2 + 1.8 \cdot$

close-abstract+repeat-rew

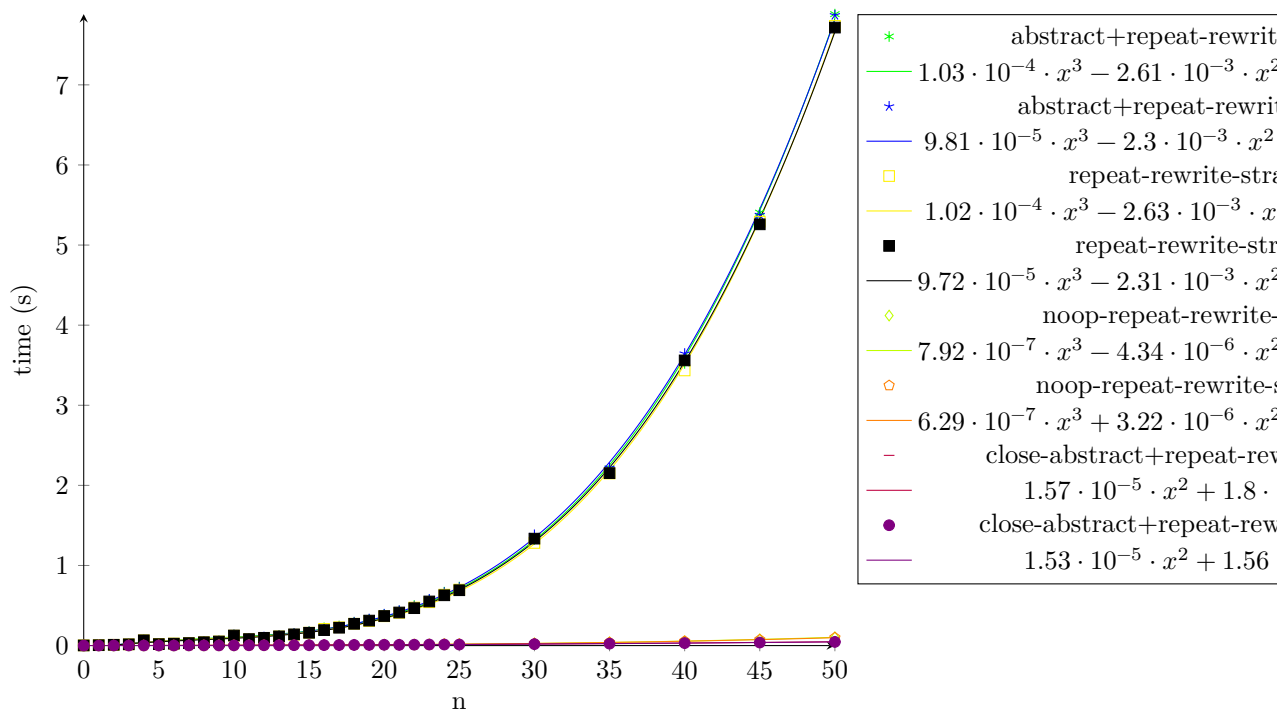$1.53 \cdot 10^{-5} \cdot x^2 + 1.56$
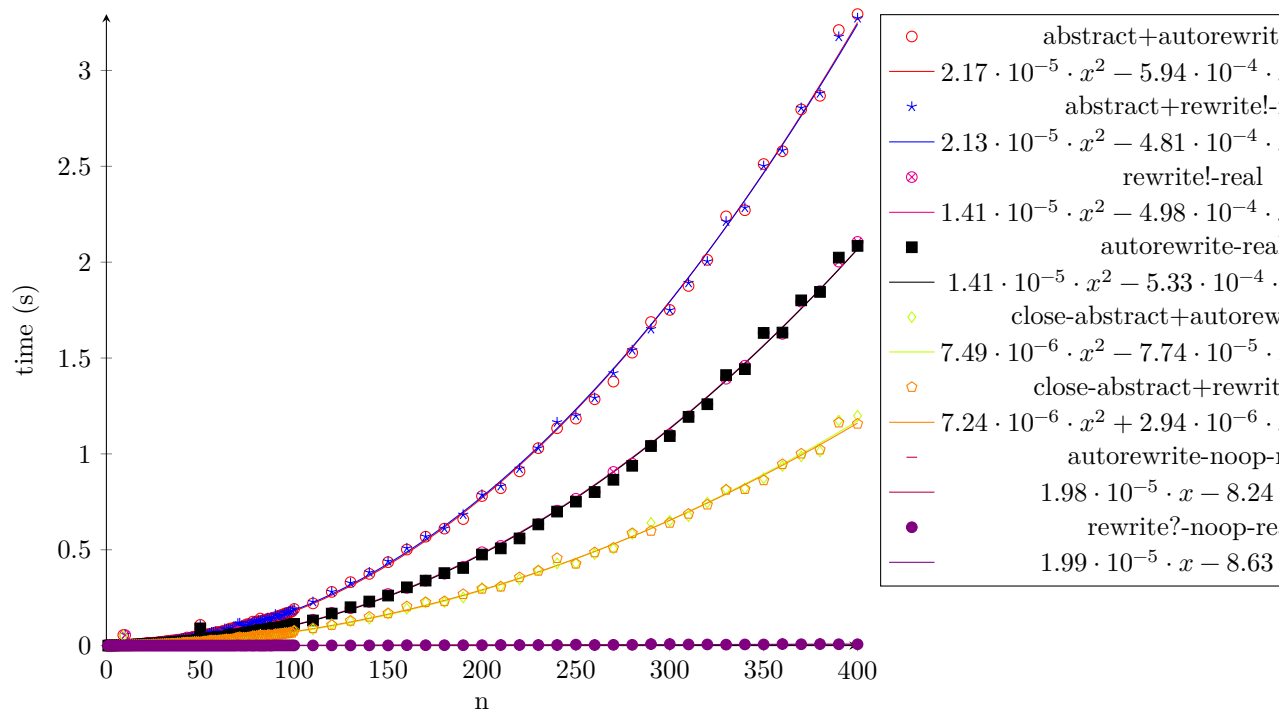
Figure 5: timing-rewrite-strat-under-binders

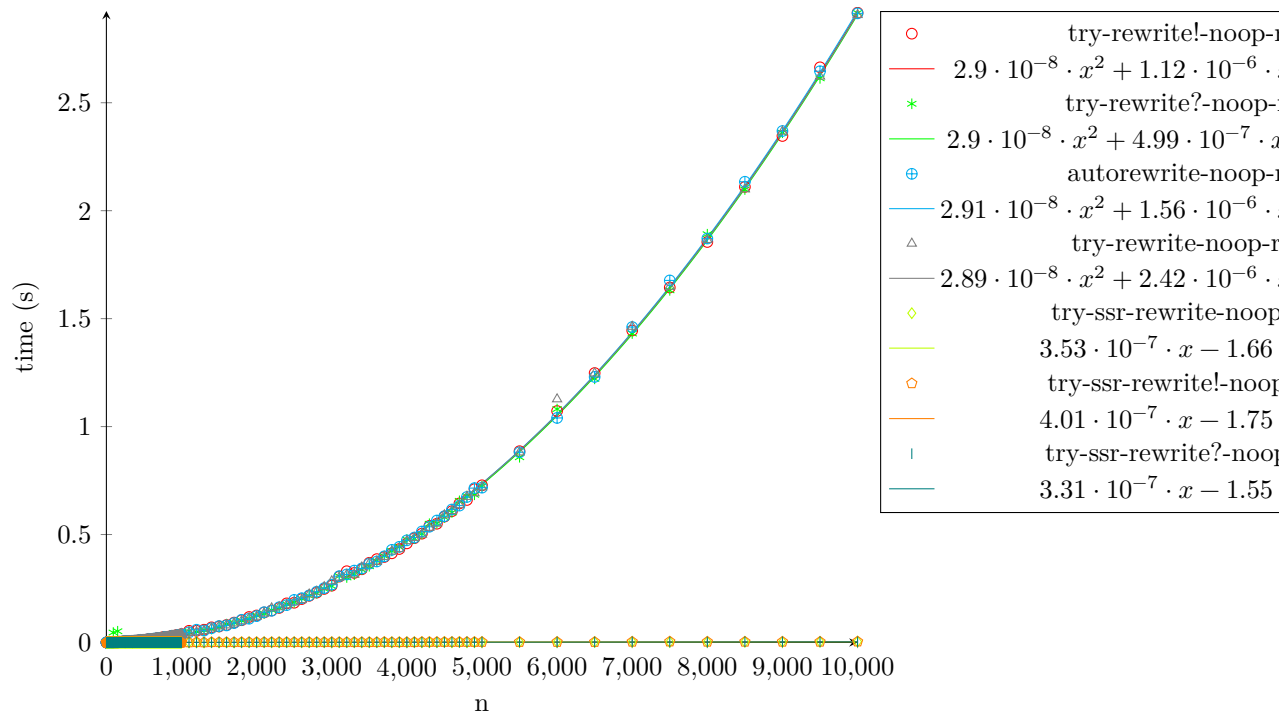Figure 6: timing-rewrite-repeated-app-autorewrite

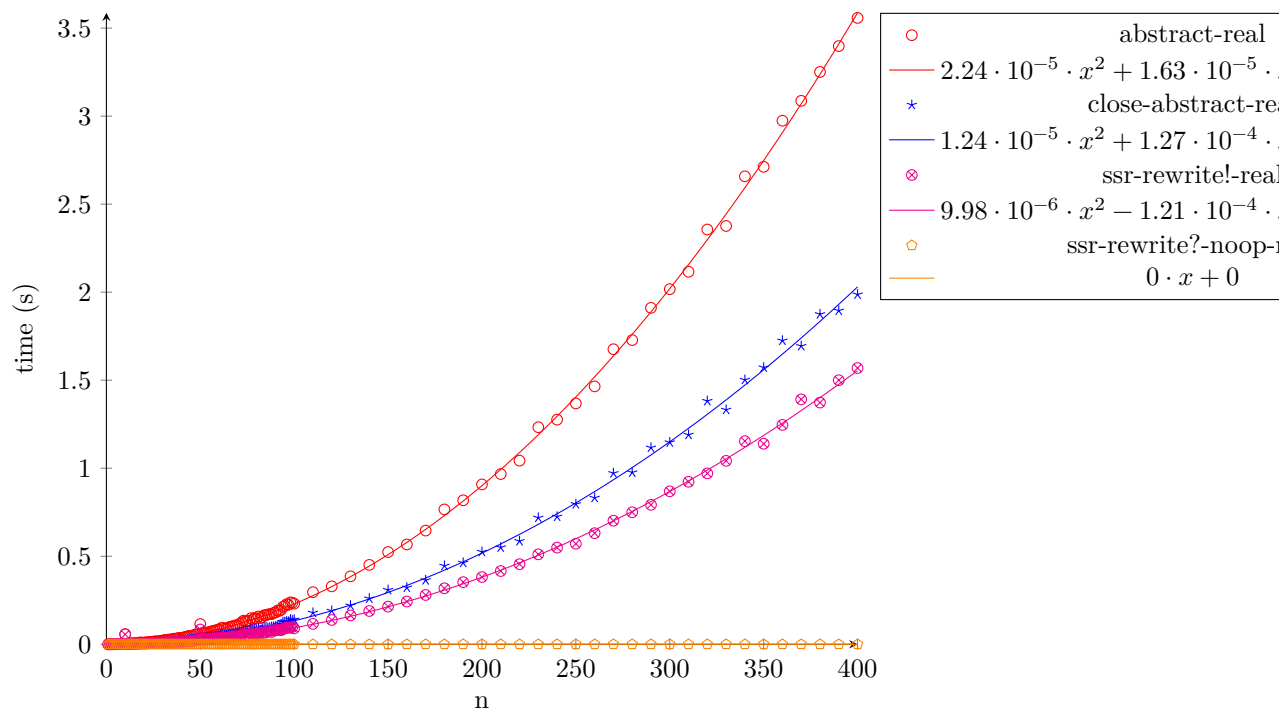Figure 7: timing-rewrite-repeated-app-autorewrite-noop

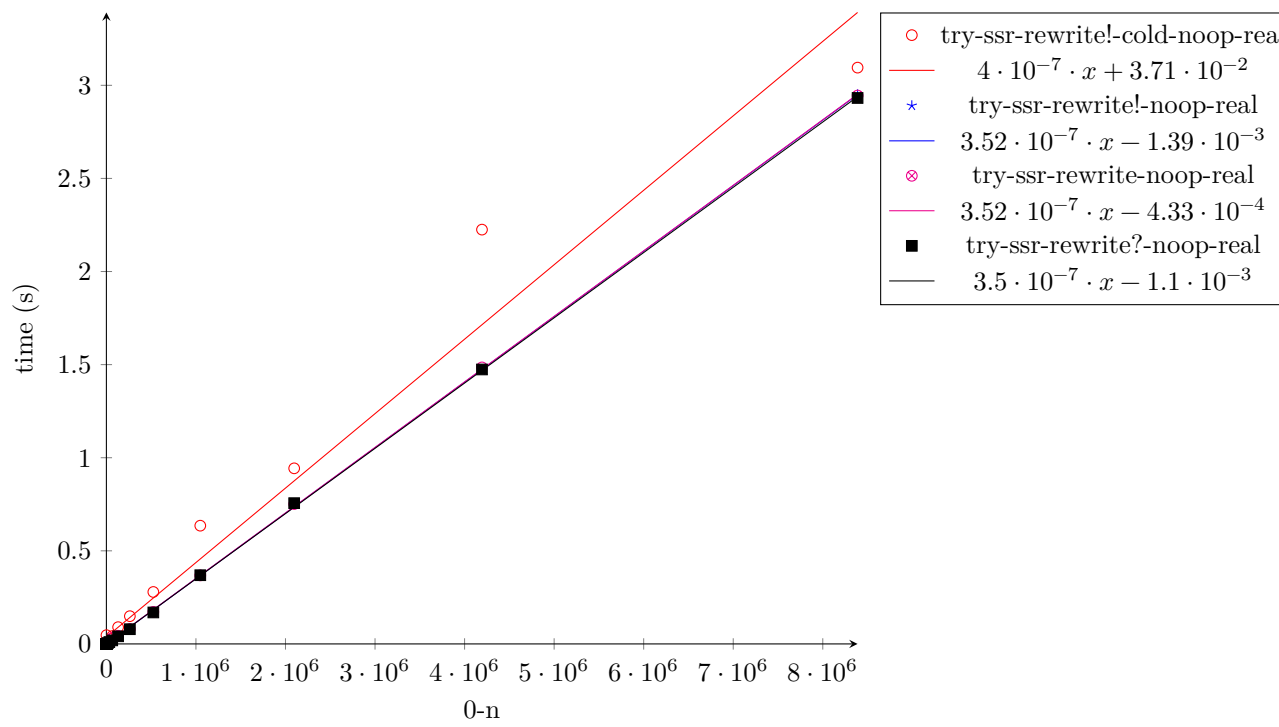Figure 8: timing-rewrite-repeated-app-ssrrewrite

8

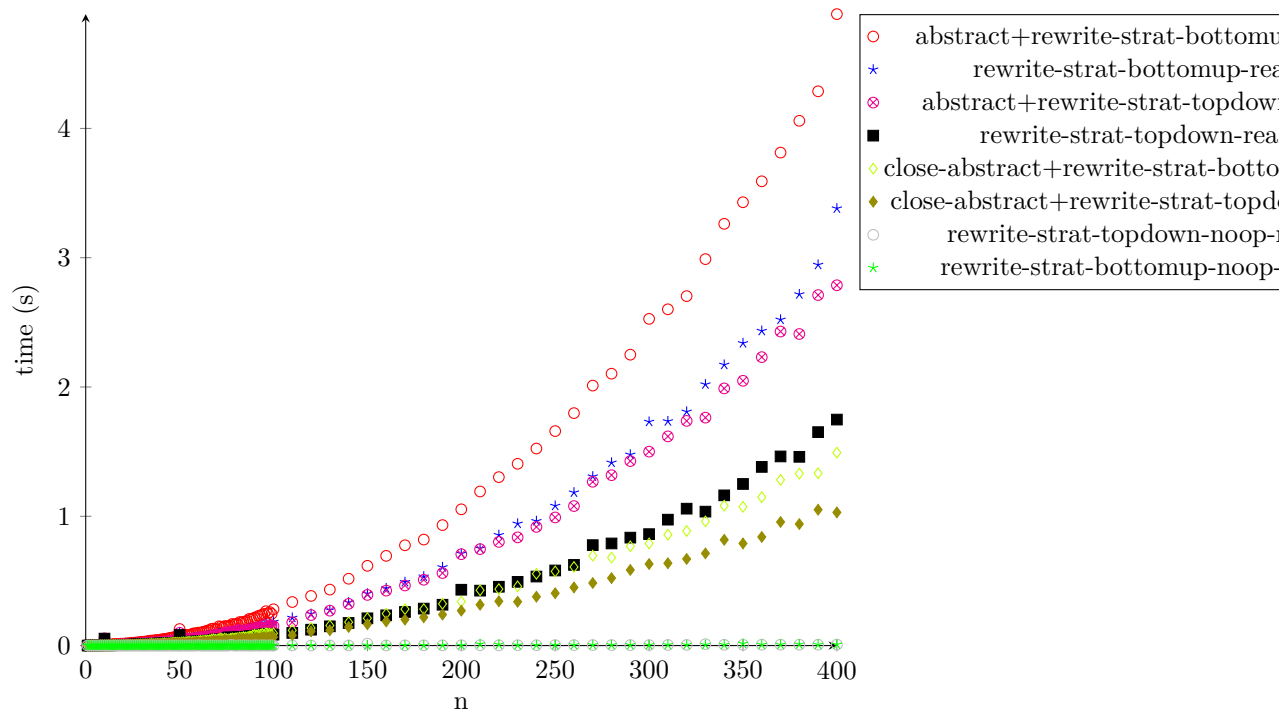Figure 9: timing-rewrite-repeated-app-ssrrewrite-noop param-1-lgn 1

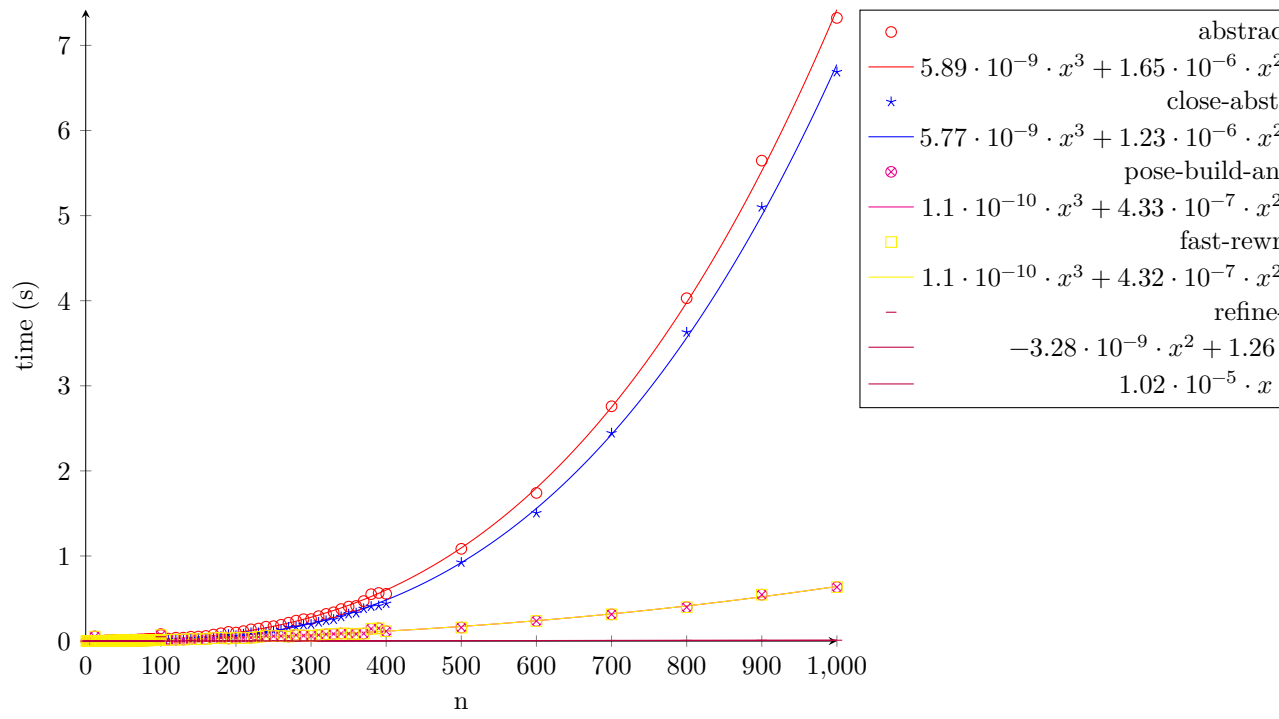Figure 10: timing-rewrite-repeated-app-rewrite-strat

Figure 11: timing-rewrite-repeated-app-fast-rewrite
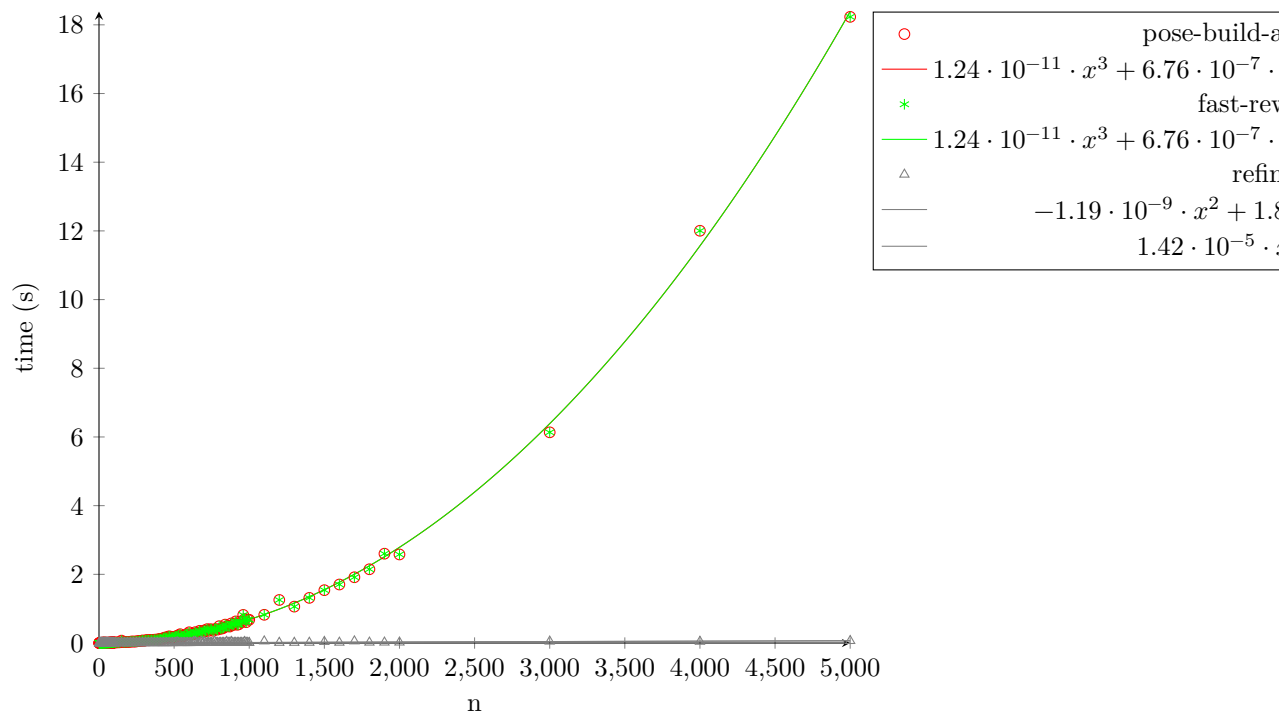
Figure 12: timing-rewrite-repeated-app-fast-rewrite-no-abstract
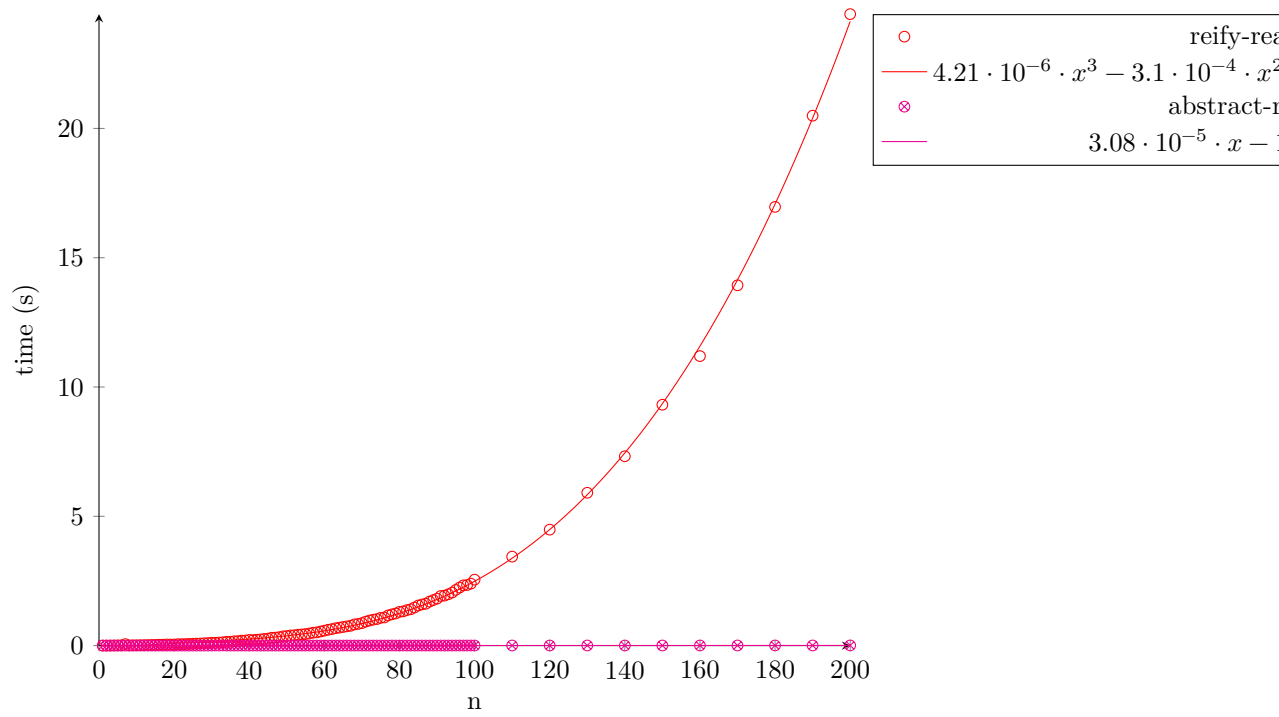
Figure 13: timing-typeclass-reification-let-in-HOAS

The figure legend contains:

- reify-rea...
- $4.21 \cdot 10^{-6} \cdot x^3 - 3.1 \cdot 10^{-4} \cdot x^2$
- abstract-r...
- $3.08 \cdot 10^{-5} \cdot x - 1$

The chart has axis labels "time (s)" (vertical) and "n" (horizontal).

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

Figure 15: timing-rewrite-lift-lets-map param-1-n 1, param-2-m 1

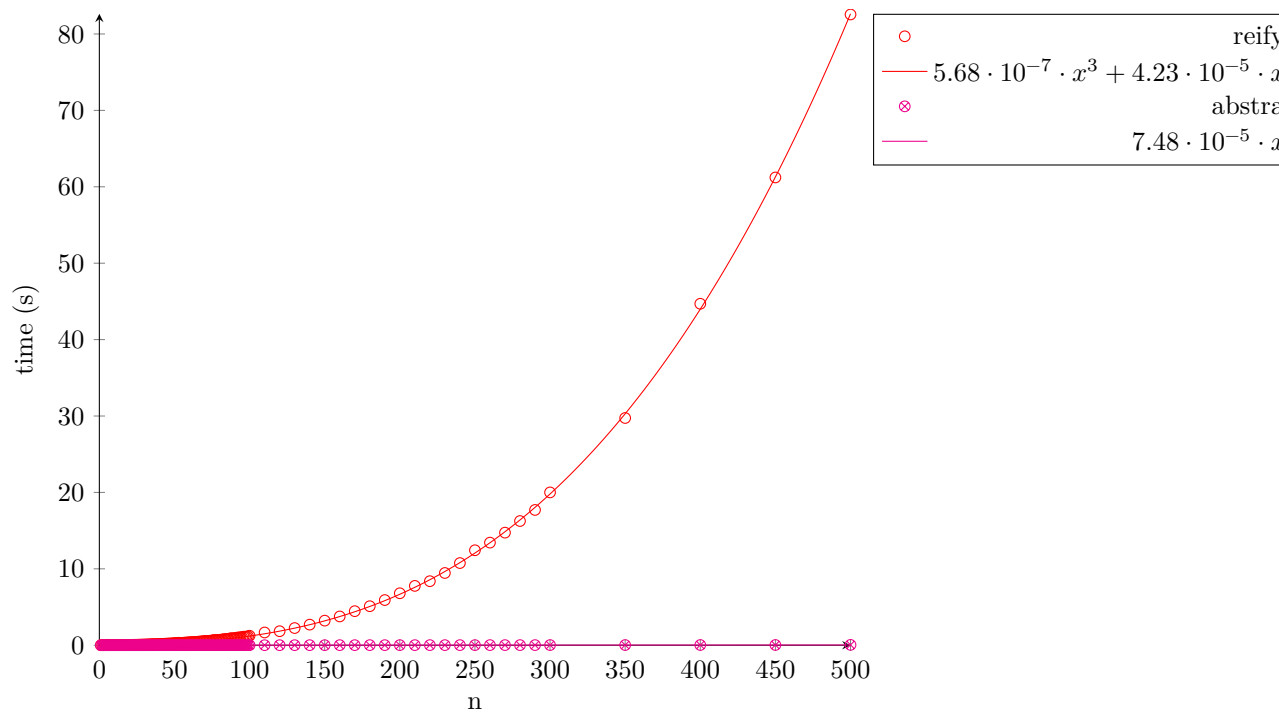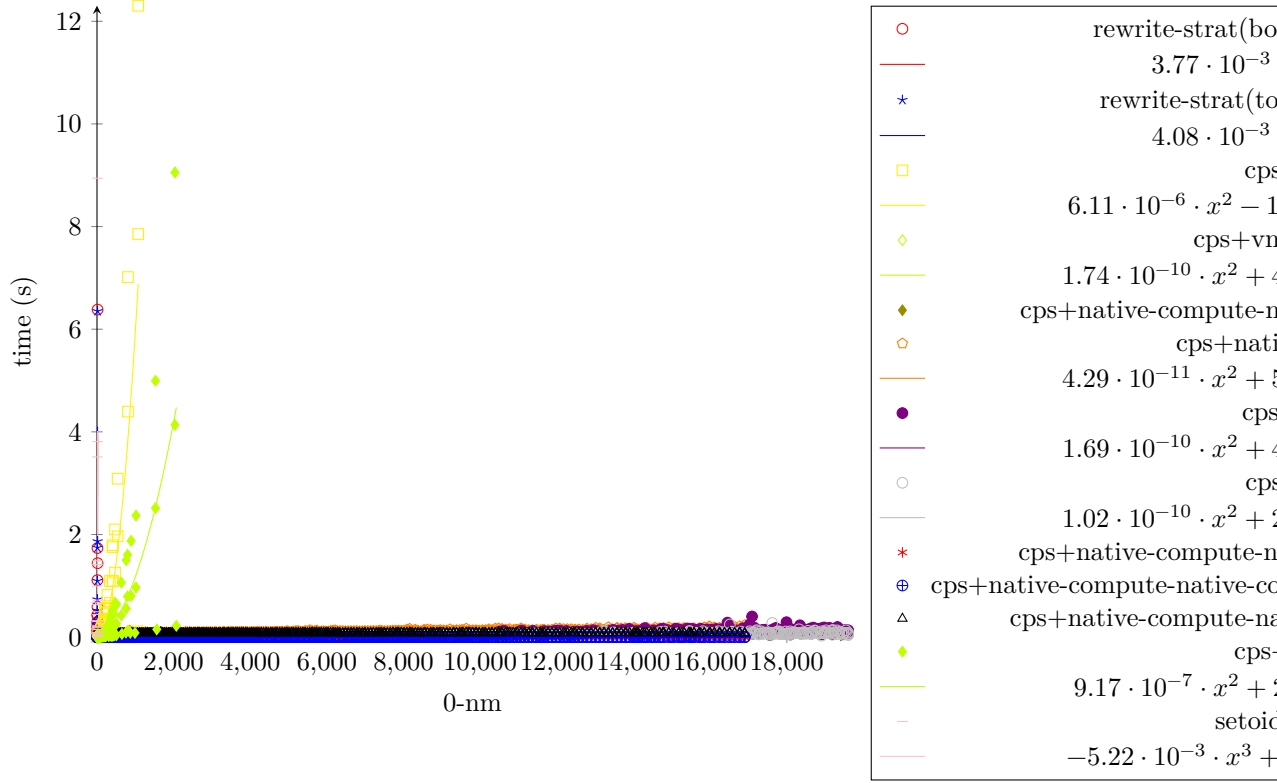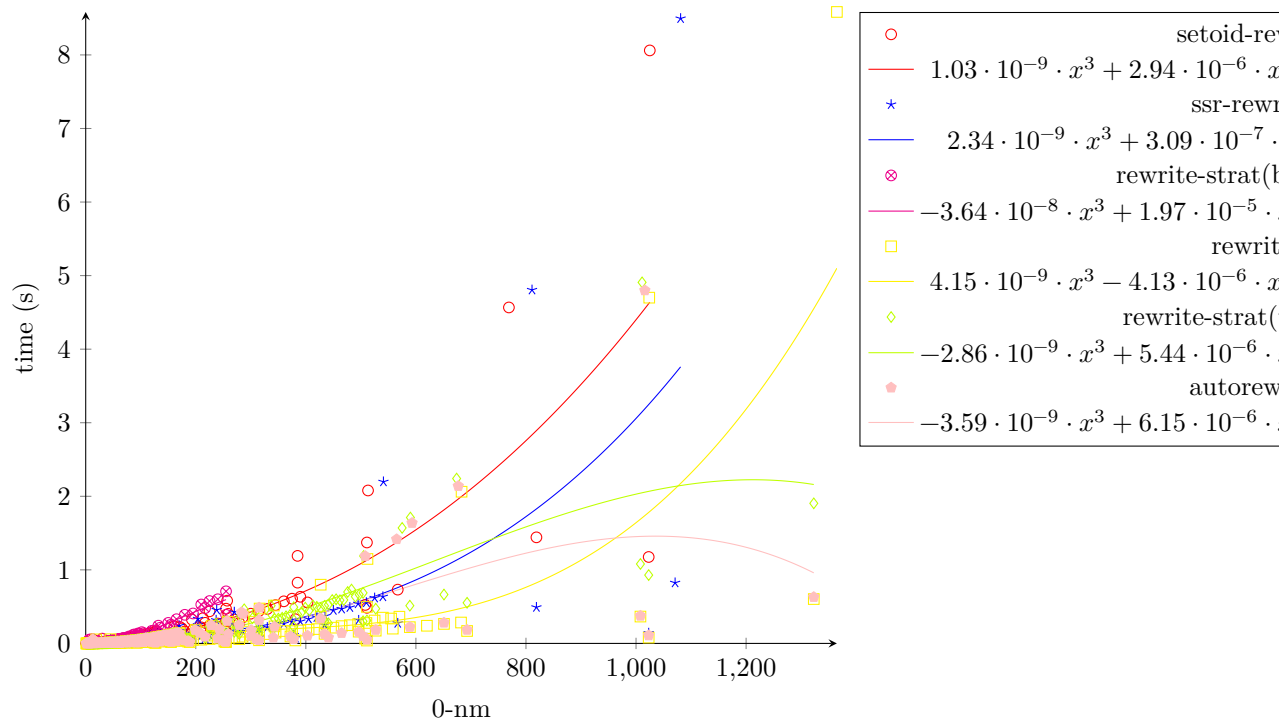Figure 16: timing-rewrite-plus-0-tree param-1-n 0, param-2-m 1, param-3-input-size 5, param-4-output-size 3, param-5-num-rewrites 1
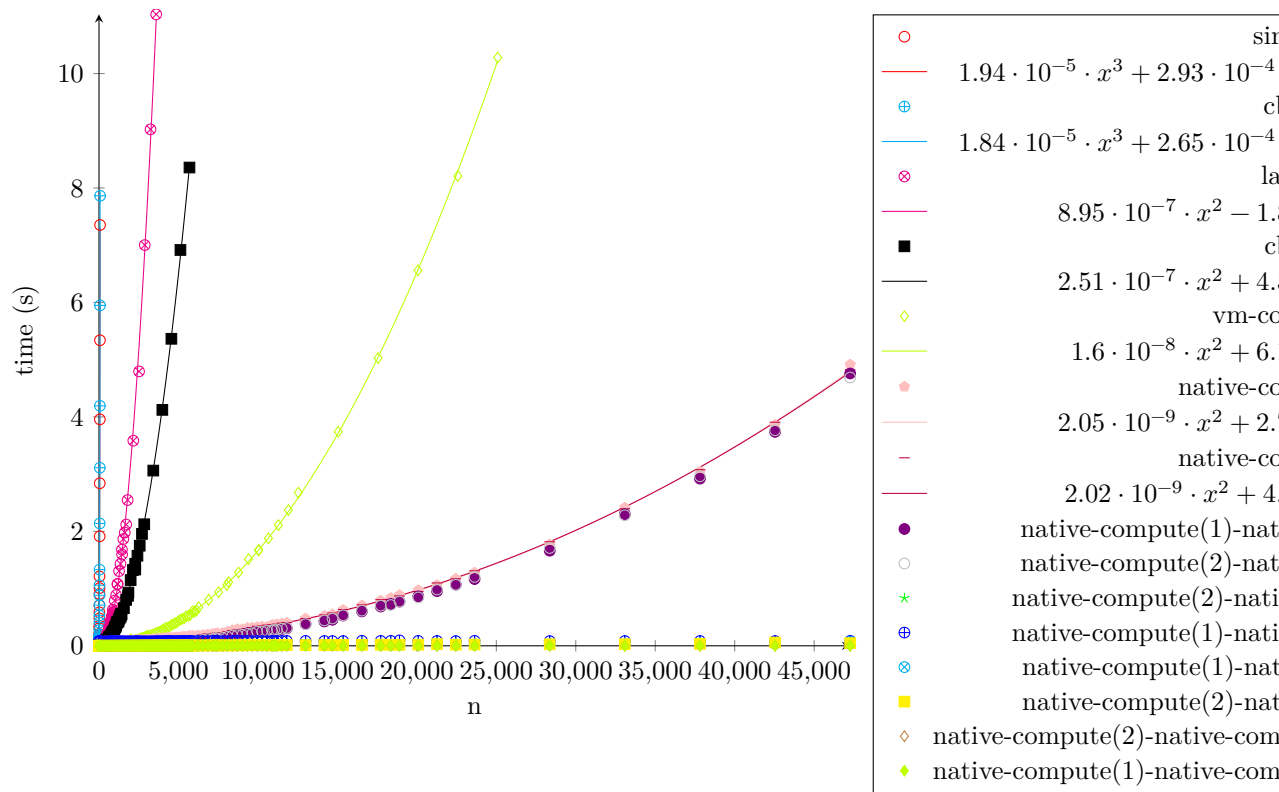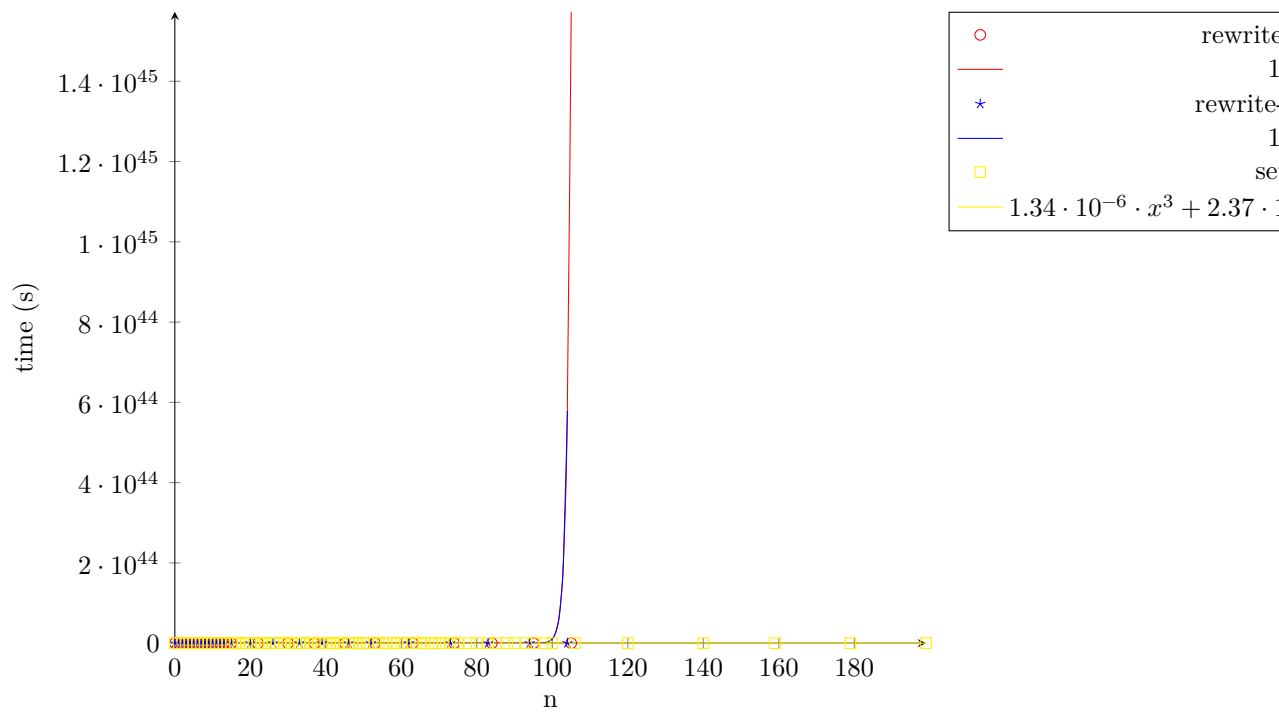
Figure 17: timing-sieve-of-eratosthenes

Figure 18: timing-rewrite-under-lets-plus-0

time (s)

16

14

12

10

8

6

4

2

0   500   1,000   1,500   2,000   2,500   3,000

n

abstract-real
$2.33 \cdot 10^{-6} \cdot x^2 - 1.33 \cdot 10^{-3}$

fast-rewrite-real
$2.12 \cdot 10^{-6} \cdot x^2 - 1.42 \cdot 10^{-3}$

type-admit-real
$3.46 \cdot 10^{-7} \cdot x^2 - 2.85 \cdot 10^{-4} \cdot x$

check-admit-real
$2.91 \cdot 10^{-7} \cdot x^2 - 2.28 \cdot 10^{-4} \cdot x$

check-admit-cast-re
$3.53 \cdot 10^{-7} \cdot x^2 - 3.08 \cdot 10^{-4} \cdot x$

type-admit-cast-re
$3.43 \cdot 10^{-7} \cdot x^2 - 2.77 \cdot 10^{-4} \cdot x$

refine-real
$3.32 \cdot 10^{-7} \cdot x^2 - 2.59 \cdot 10^{-4} \cdot x$
$4.29 \cdot 10^{-4} \cdot x - 5.26$

type-pf-cast-real
$3.29 \cdot 10^{-7} \cdot x^2 - 2.71 \cdot 10^{-4} \cdot x$

close-abstract-rea
$2.15 \cdot 10^{-7} \cdot x^2 + 9.08 \cdot 10^{-5} \cdot x$

check-pf-cast-rea
$1.24 \cdot 10^{-7} \cdot x^2 + 5.73 \cdot 10^{-5}$

build-eval-thunk-re
$9.53 \cdot 10^{-5} \cdot x + 6.08$

build-thunk-real
$9.45 \cdot 10^{-5} \cdot x + 4.98$

check-I-real
$1.65 \cdot 10^{-5} \cdot x - 5.22$

type-I-real
$1.74 \cdot 10^{-5} \cdot x - 4.66$

build-admit-real
$7.18 \cdot 10^{-6} \cdot x - 4.54$

build-admit-cast-re
$6.65 \cdot 10^{-6} \cdot x - 3.92$

build-I-real
$6.79 \cdot 10^{-6} \cdot x - 3 \cdot 1$

build-pf-cast-real
$6.54 \cdot 10^{-6} \cdot x - 3.63$
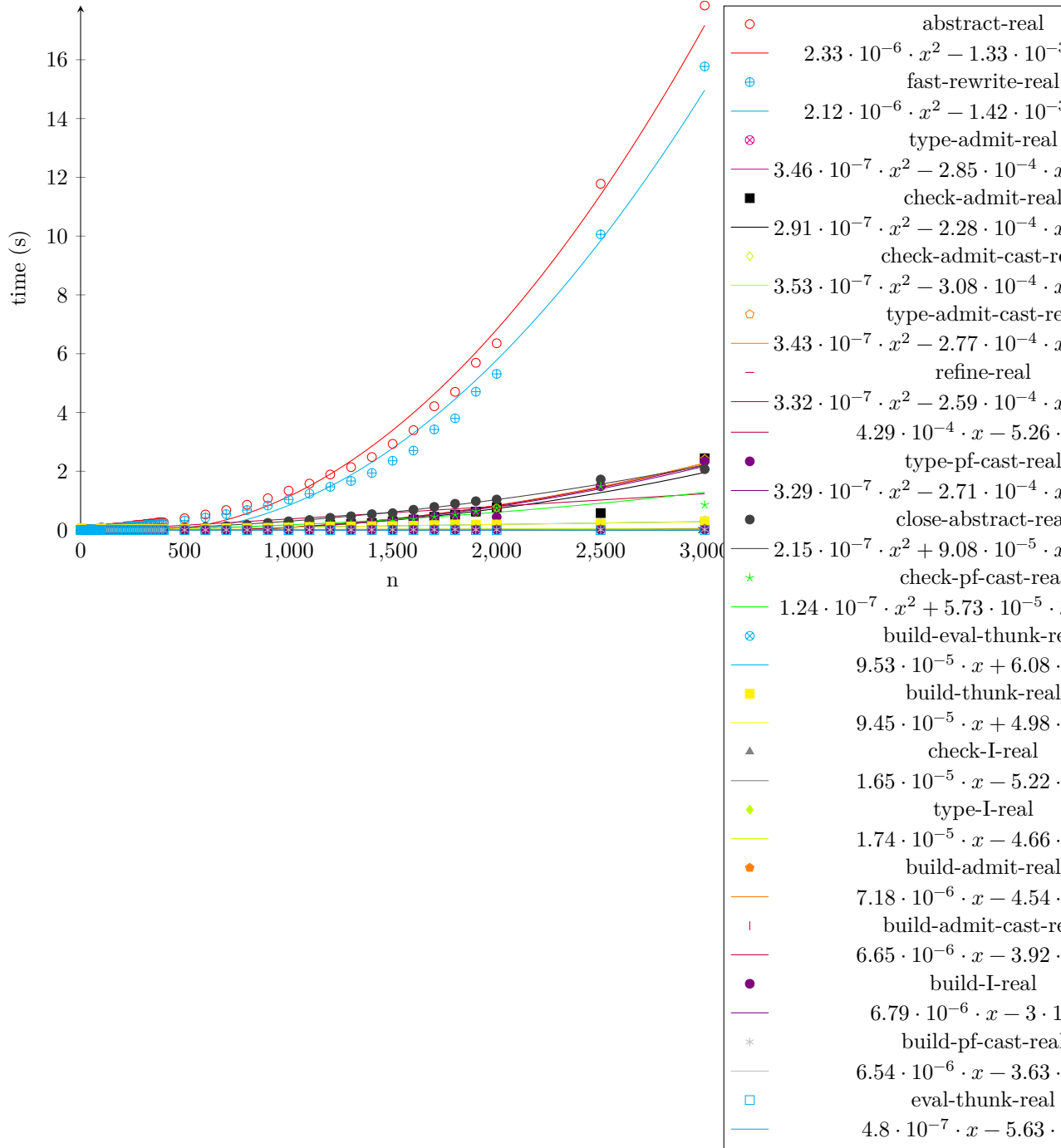
eval-thunk-real
$4.8 \cdot 10^{-7} \cdot x - 5.63$

Figure 19: timing-rewrite-repeated-app-fast-rewrite-ltac2