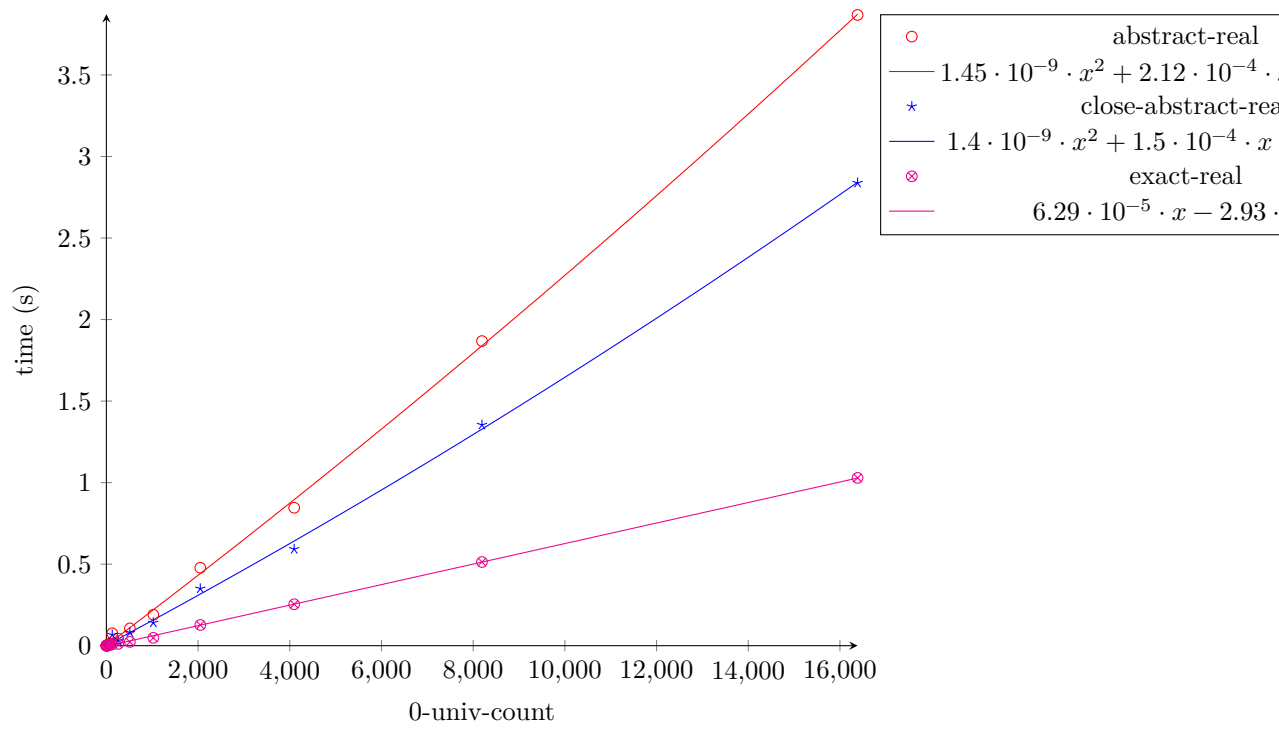Figure 1: timing-pattern

1

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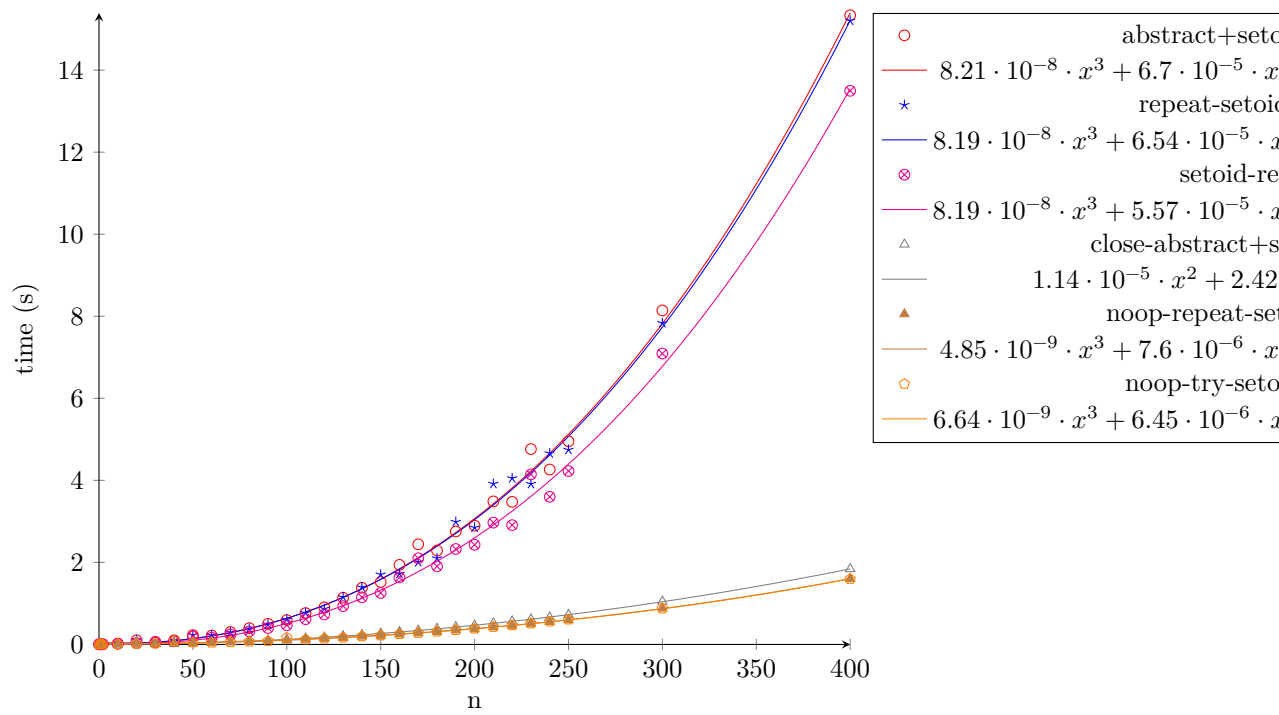
Figure 3: timing-repeat-setoid-rewrite-under-binders
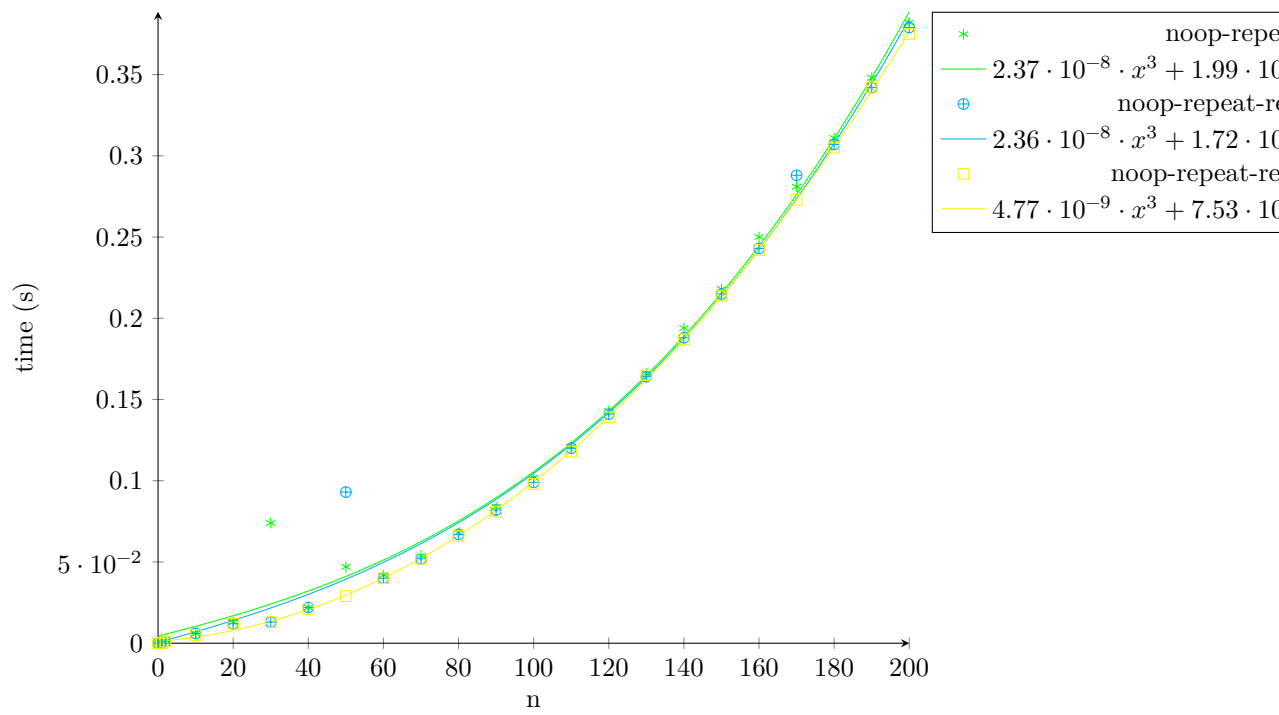
Figure 4: timing-repeat-setoid-rewrite-under-binders-noop

The figure legend contains:

noop-repe...
$2.37 \cdot 10^{-8} \cdot x^3 + 1.99 \cdot 10$...

noop-repeat-re...
$2.36 \cdot 10^{-8} \cdot x^3 + 1.72 \cdot 10$...

noop-repeat-re...
$4.77 \cdot 10^{-9} \cdot x^3 + 7.53 \cdot 10$...

The plot has axes labeled "time (s)" (vertical) and "n" (horizontal), with vertical axis values $5 \cdot 10^{-2}$, 0.1, 0.15, 0.2, 0.25, 0.3, 0.35 and horizontal axis values $0, 20, 40, 60, 80, 100, 120, 140, 160, 180, 200$.
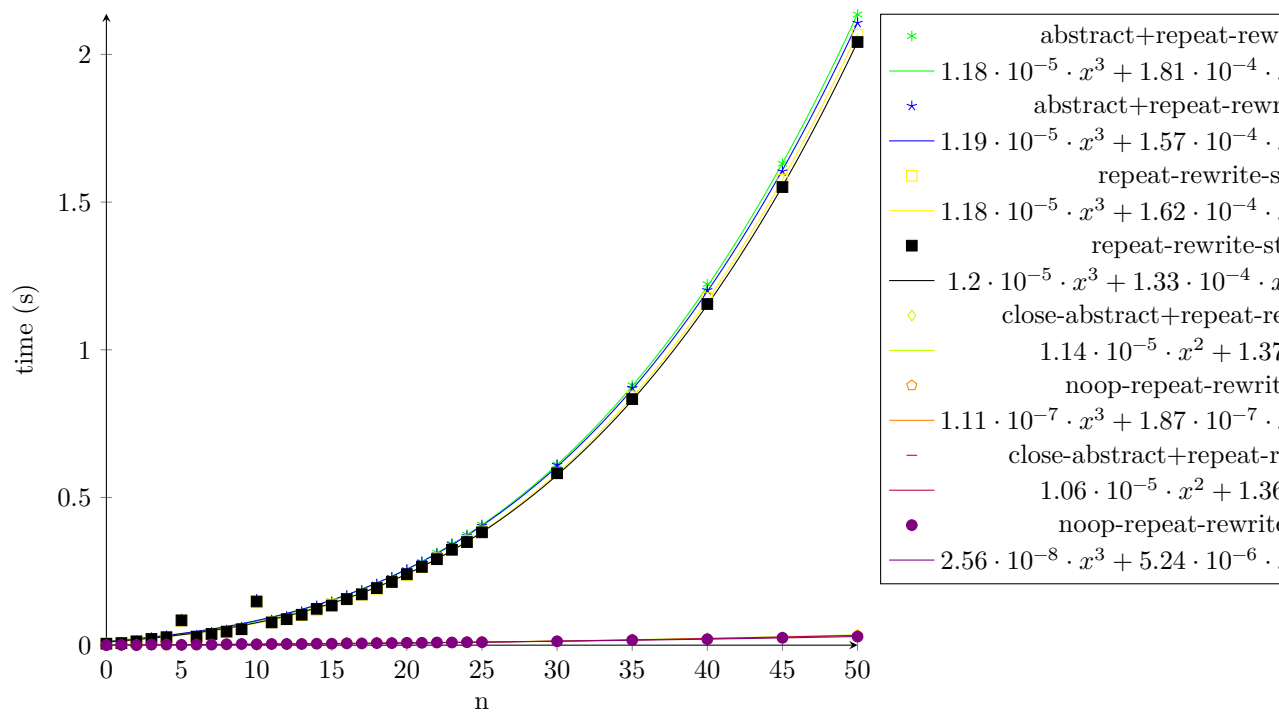
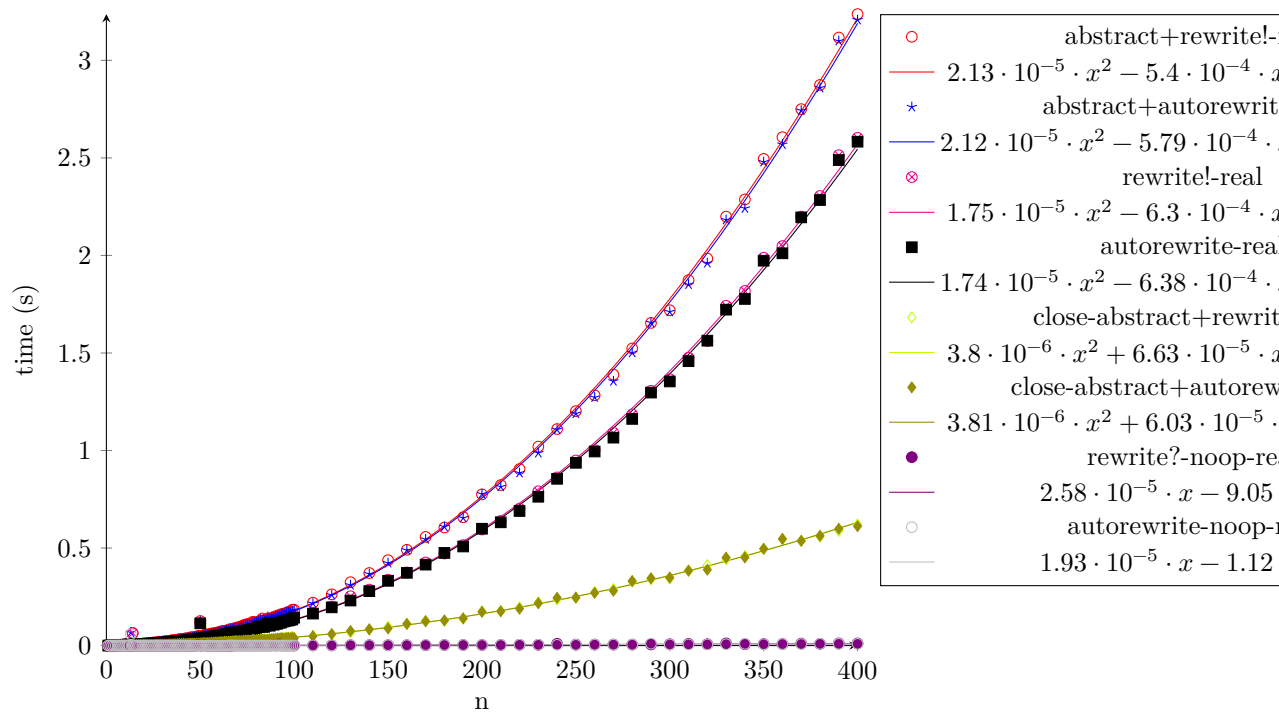Figure 5: timing-rewrite-strat-under-binders

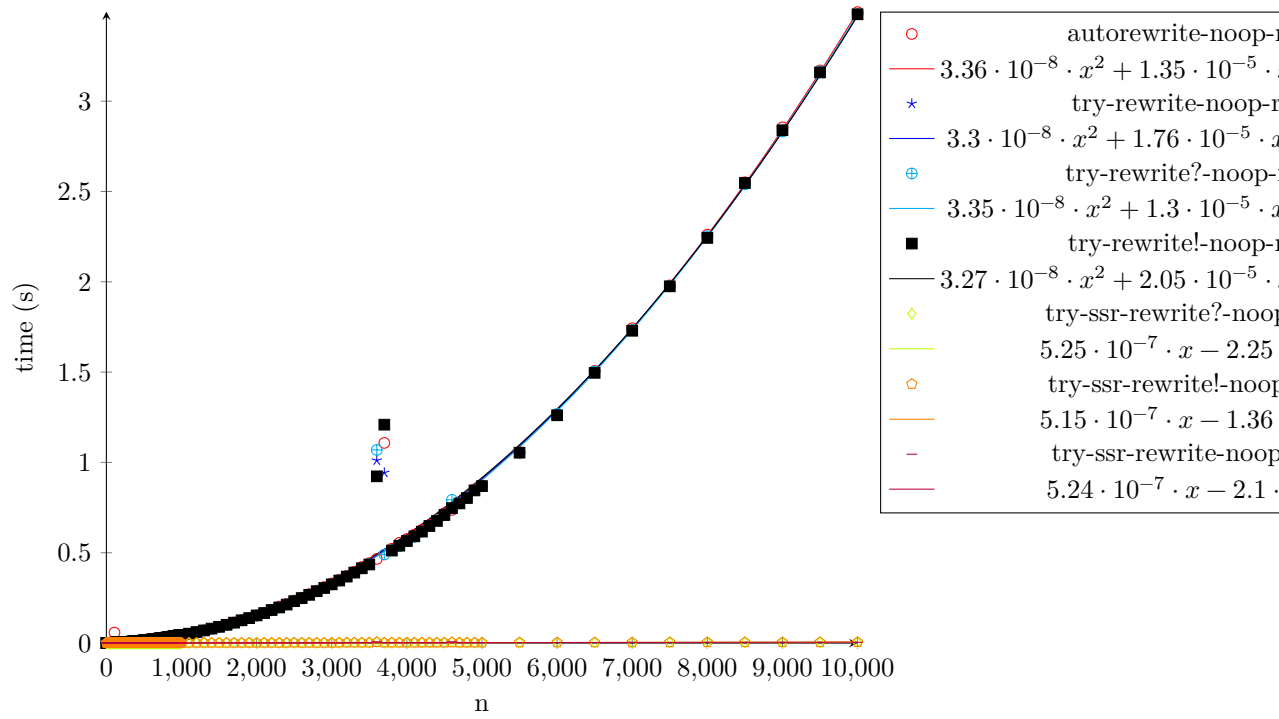Figure 6: timing-rewrite-repeated-app-autorewrite

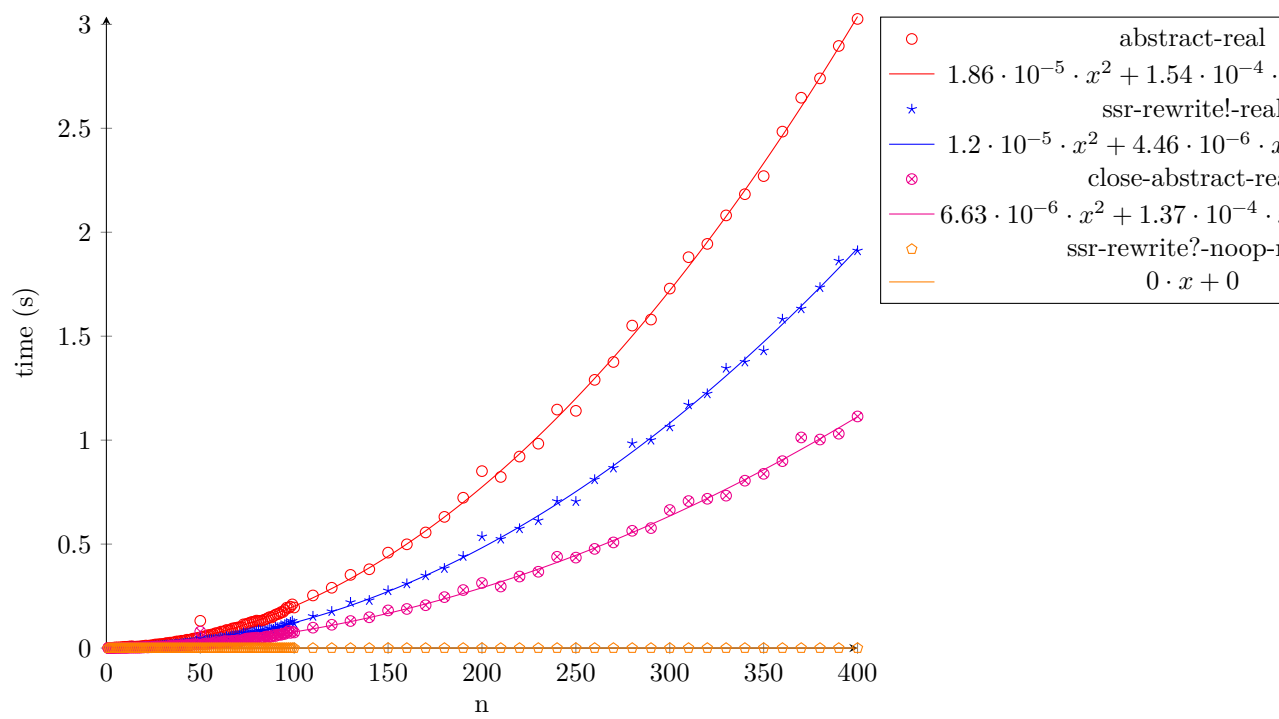Figure 7: timing-rewrite-repeated-app-autorewrite-noop
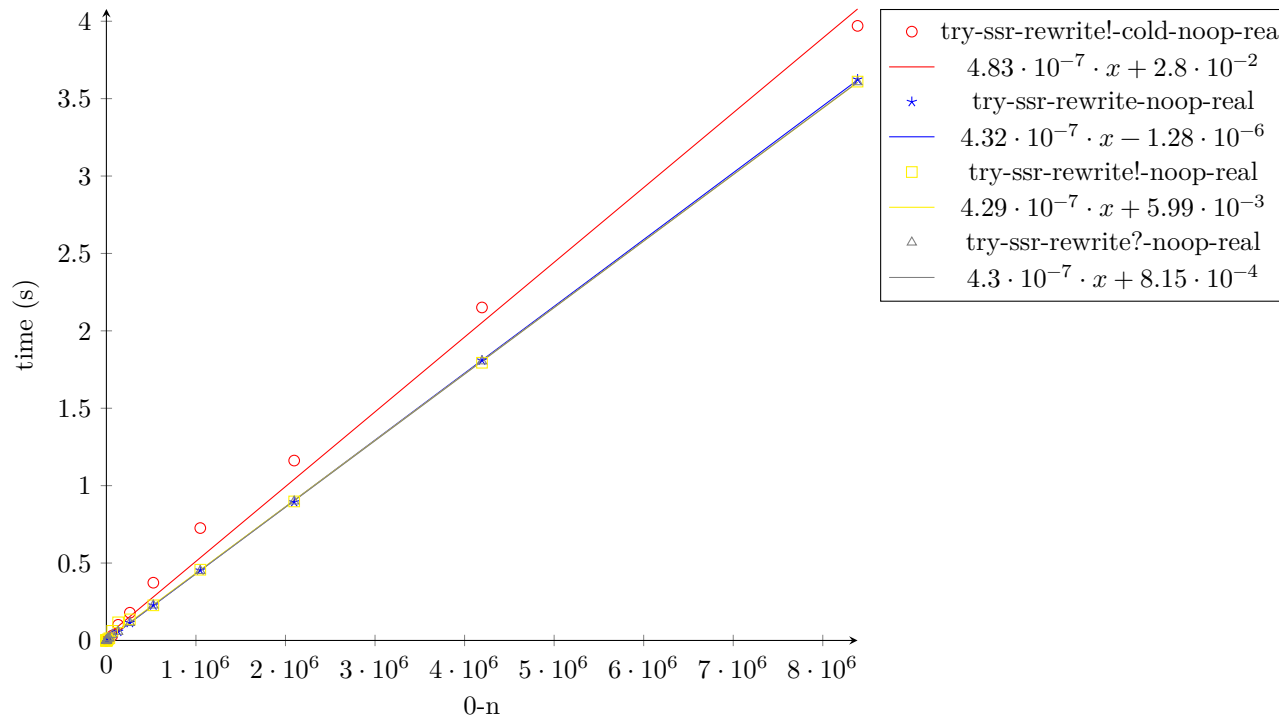
Figure 8: timing-rewrite-repeated-app-ssrrewrite

8

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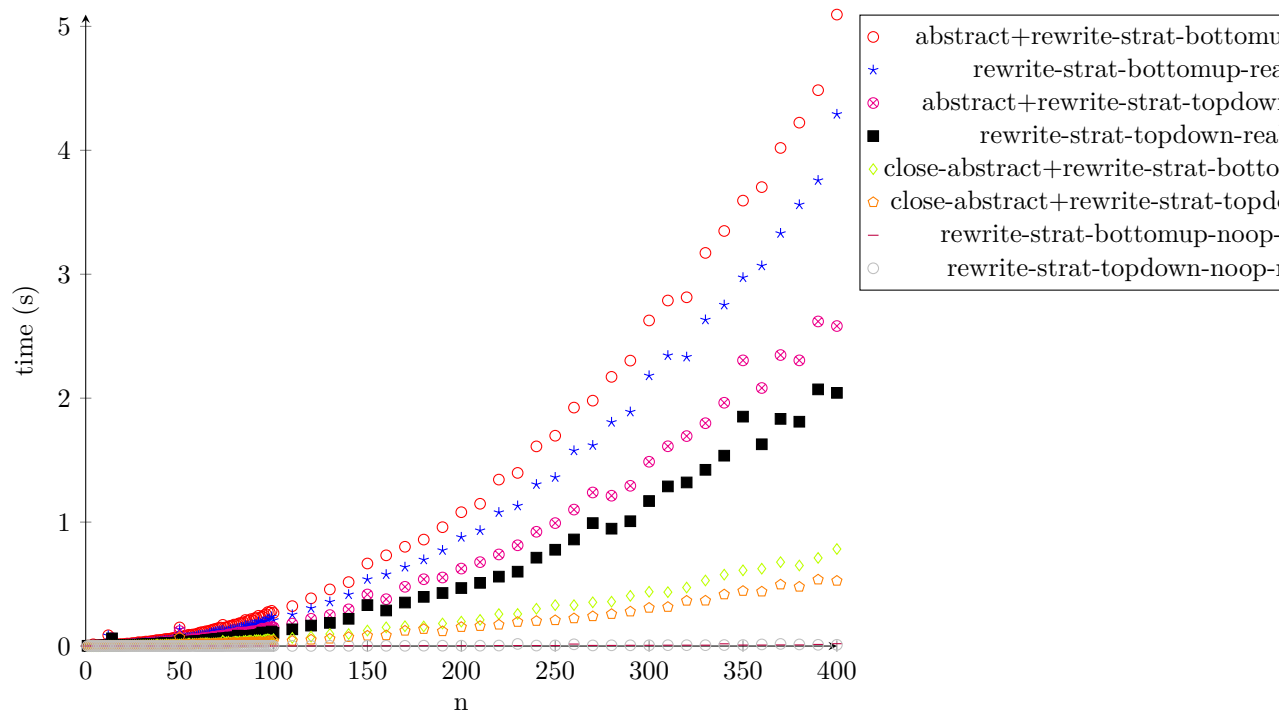
Figure 10: timing-rewrite-repeated-app-rewrite-strat

The legend reads:
- abstract+rewrite-strat-bottomu...
- rewrite-strat-bottomup-rea...
- abstract+rewrite-strat-topdow...
- rewrite-strat-topdown-rea...
- close-abstract+rewrite-strat-botto...
- close-abstract+rewrite-strat-topd...
- rewrite-strat-bottomup-noop-...
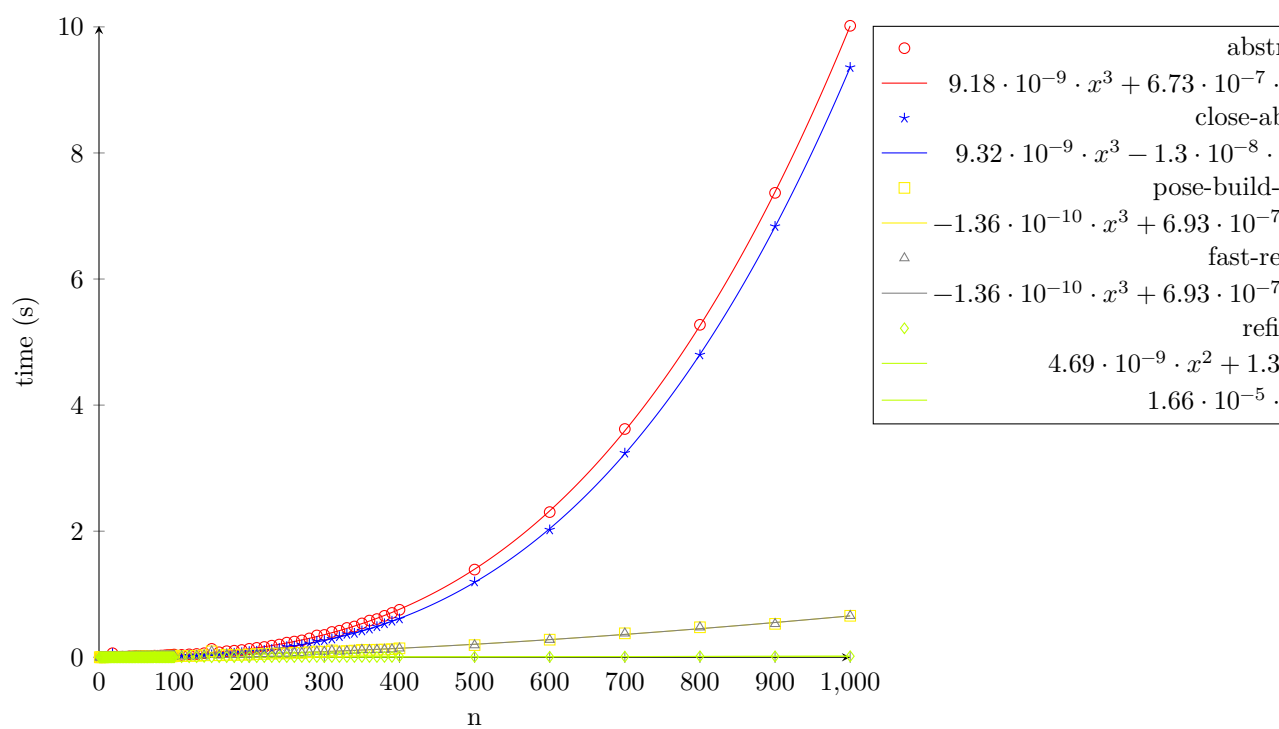- rewrite-strat-topdown-noop-...

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

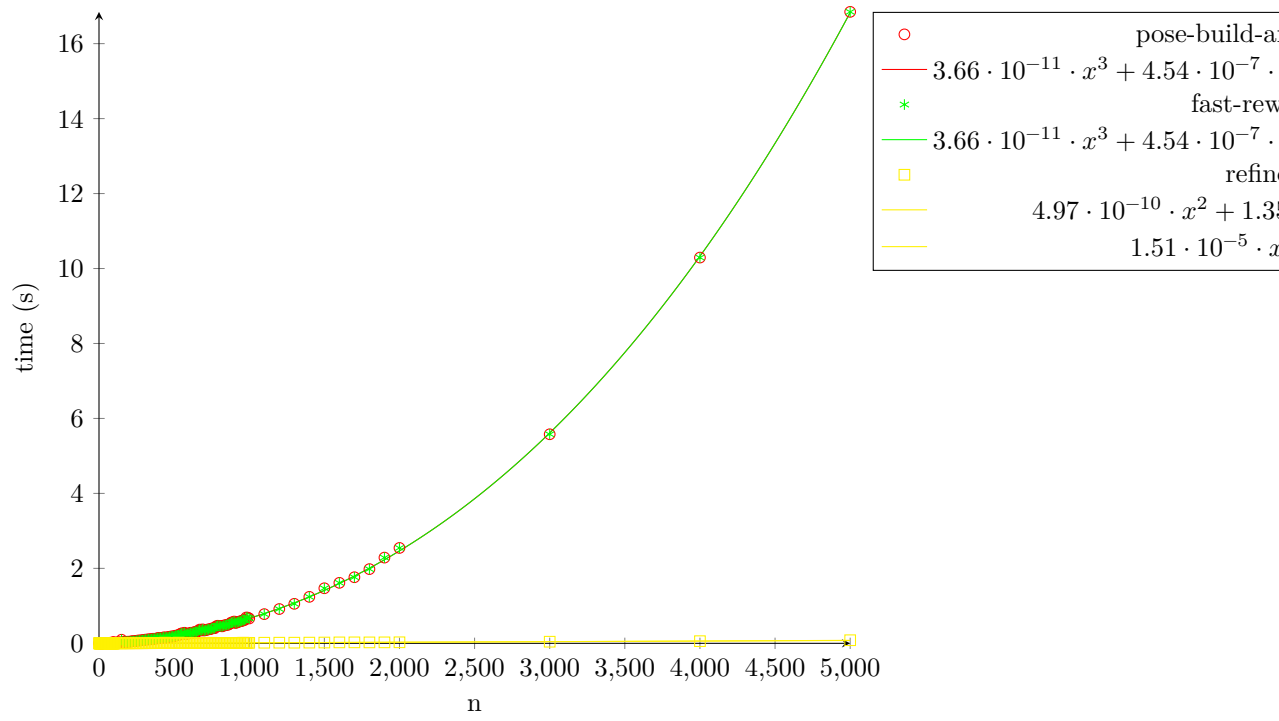Figure 12: timing-rewrite-repeated-app-fast-rewrite-no-abstract

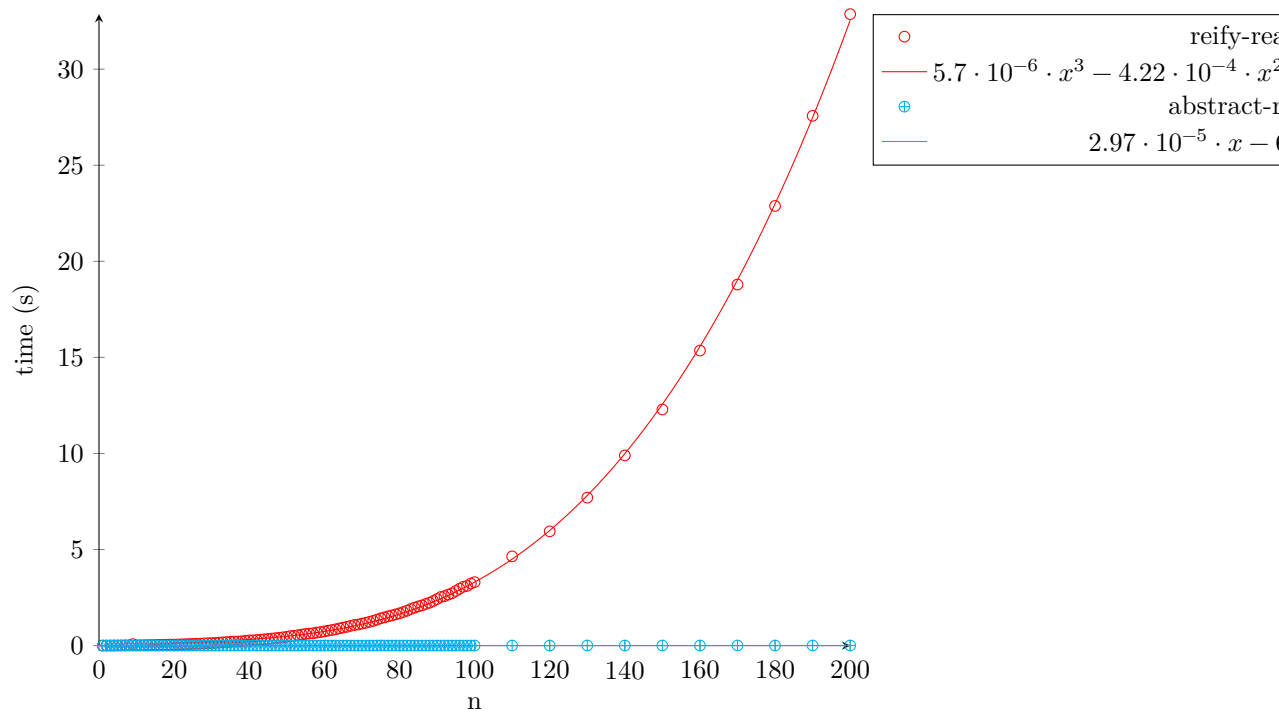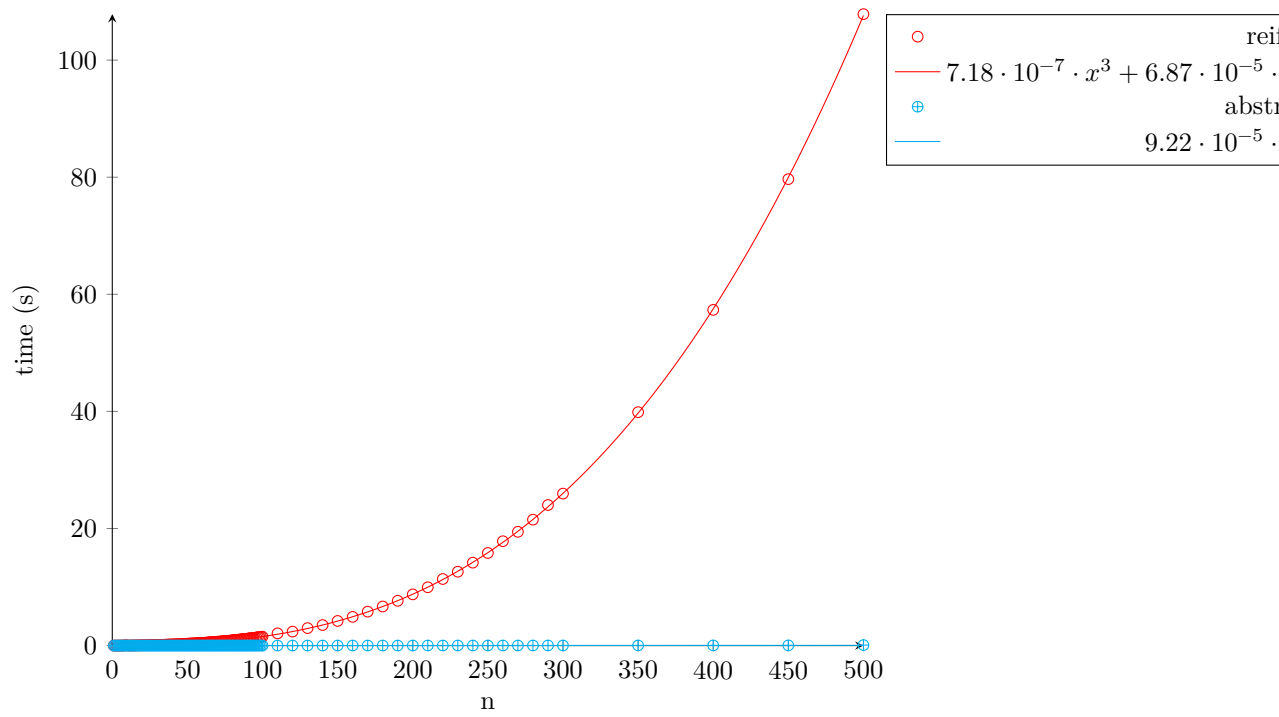Figure 13: timing-typeclass-reification-let-in-HOAS

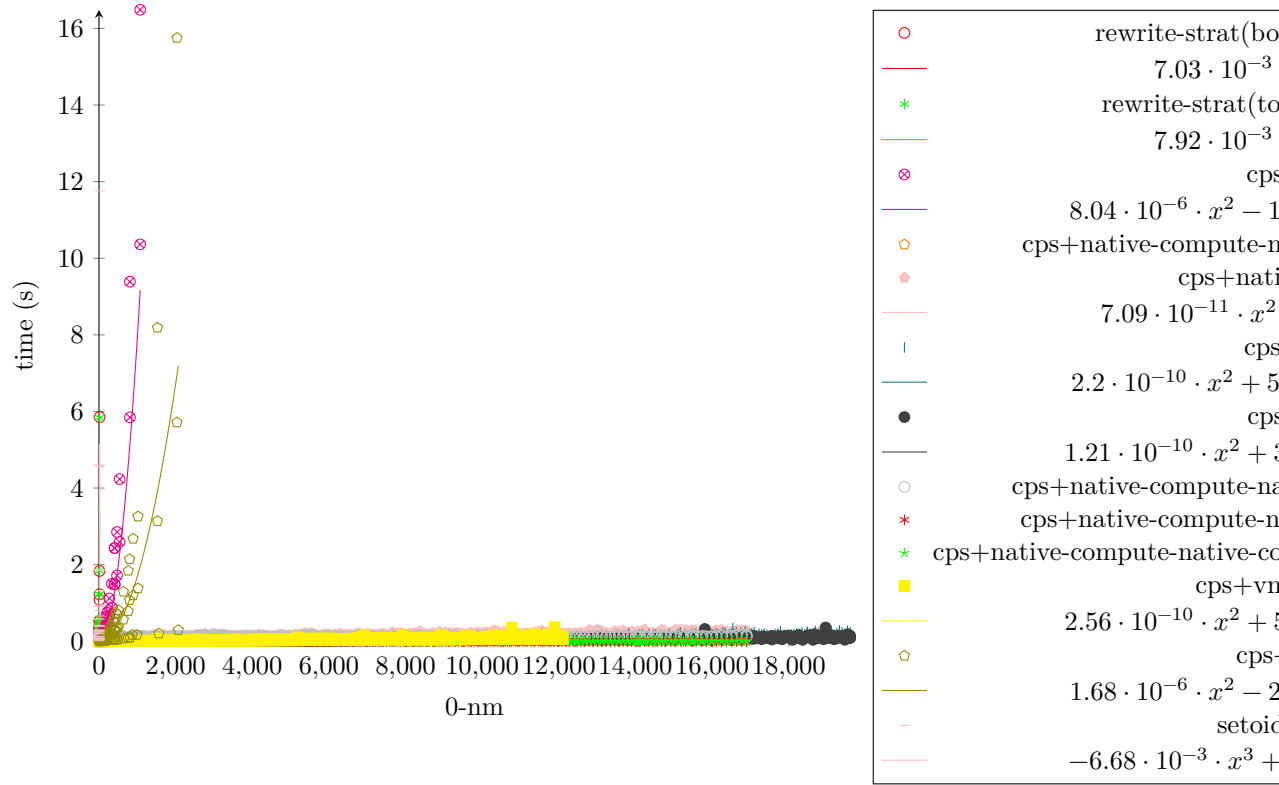Figure 14: timing-typeclass-reification-let-in-PHOAS

14

Figure 15: timing-rewrite-lift-lets-map param-1-n 1, param-2-m 1
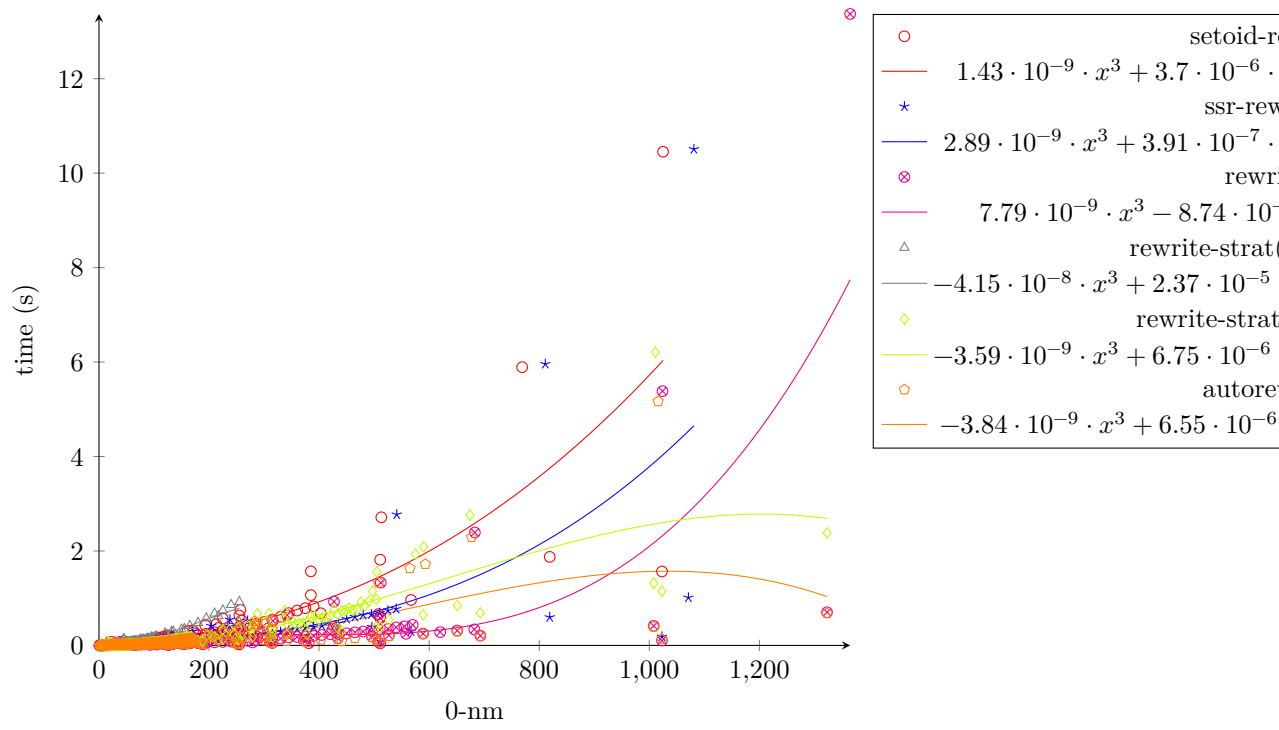
Figure 16: timing-rewrite-plus-0-tree param-1-n 0, param-2-m 1, param-3-input-size 5, param-4-output-size 3, param-5-num-rewrites 1
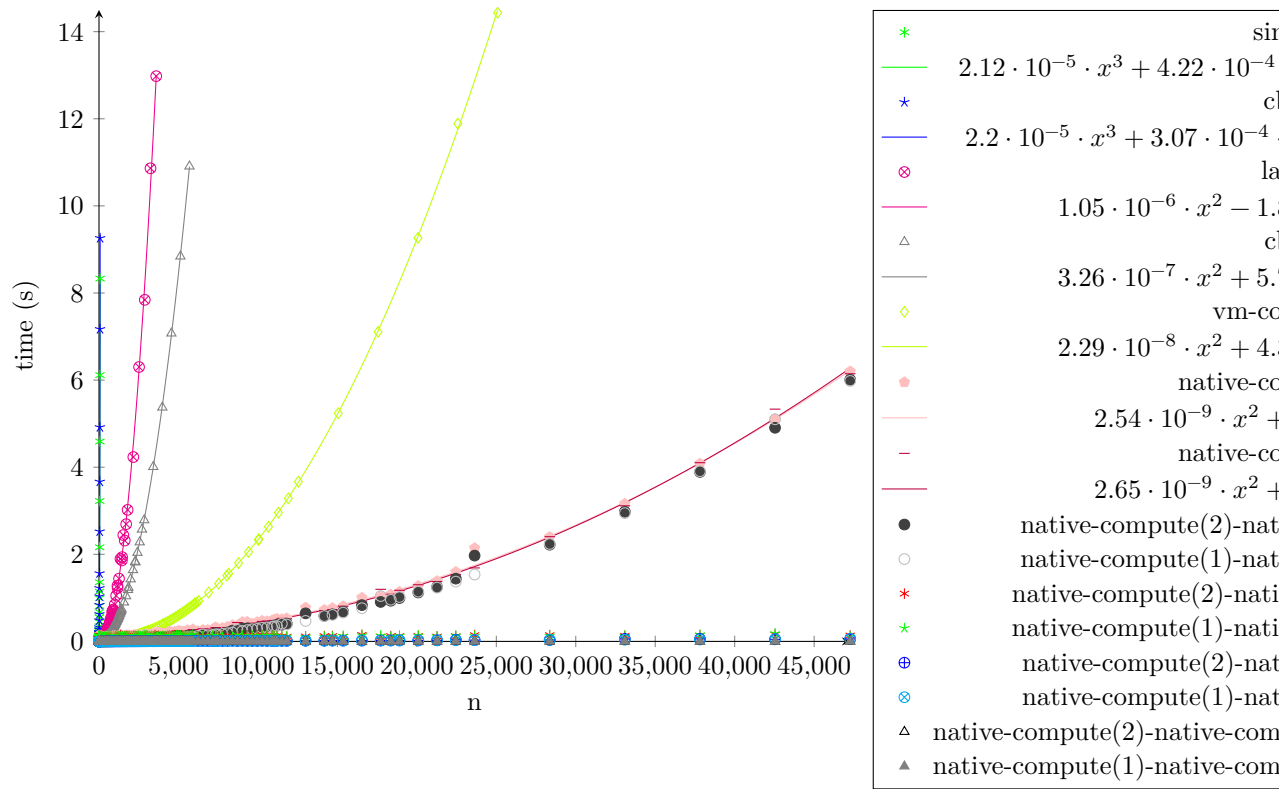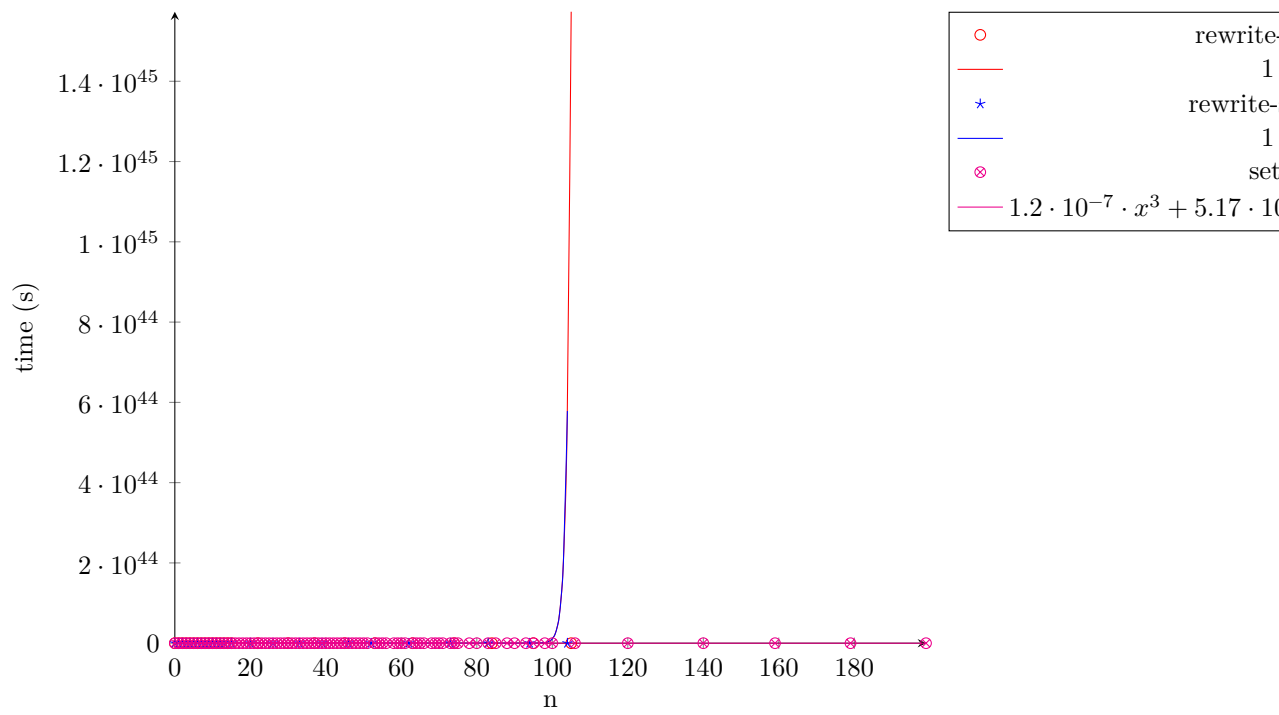
Figure 17: timing-sieve-of-eratosthenes

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

time (s)

20

15

10

5

0

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

n

abstract-real
$2.83 \cdot 10^{-6} \cdot x^2 - 1.64 \cdot 10^{-3}$

fast-rewrite-real
$2.54 \cdot 10^{-6} \cdot x^2 - 1.66 \cdot 10^{-3}$

type-admit-real
$3.95 \cdot 10^{-7} \cdot x^2 - 3.26 \cdot 10^{-4} \cdot x$

type-admit-cast-re
$4.02 \cdot 10^{-7} \cdot x^2 - 3.12 \cdot 10^{-4} \cdot x$

close-abstract-rea
$2.96 \cdot 10^{-7} \cdot x^2 + 2.27 \cdot 10^{-5} \cdot x$

check-admit-cast-re
$3.58 \cdot 10^{-7} \cdot x^2 - 2.51 \cdot 10^{-4} \cdot x$

type-pf-cast-real
$3.57 \cdot 10^{-7} \cdot x^2 - 2.48 \cdot 10^{-4} \cdot x$

refine-real
$3.41 \cdot 10^{-7} \cdot x^2 - 2.48 \cdot 10^{-4} \cdot x$
$4.59 \cdot 10^{-4} \cdot x - 5.45$

check-pf-cast-rea
$3.42 \cdot 10^{-7} \cdot x^2 - 2.29 \cdot 10^{-4} \cdot x$

check-admit-real
$3.4 \cdot 10^{-7} \cdot x^2 - 2.34 \cdot 10^{-4} \cdot x$

build-eval-thunk-re
$1.1 \cdot 10^{-4} \cdot x - 1.2 \cdot 1$

build-thunk-real
$1.1 \cdot 10^{-4} \cdot x - 1.2 \cdot 1$

type-I-real
$2.15 \cdot 10^{-5} \cdot x - 5.89 \cdot$

check-I-real
$1.97 \cdot 10^{-5} \cdot x - 5.31 \cdot$

build-admit-real
$7.48 \cdot 10^{-6} \cdot x - 3.5 \cdot$

build-pf-cast-rea
$8.54 \cdot 10^{-6} \cdot x - 4.95 \cdot$

build-admit-cast-re
$7.51 \cdot 10^{-6} \cdot x - 3.64 \cdot$

build-I-real
$8.27 \cdot 10^{-6} \cdot x - 4.79 \cdot$
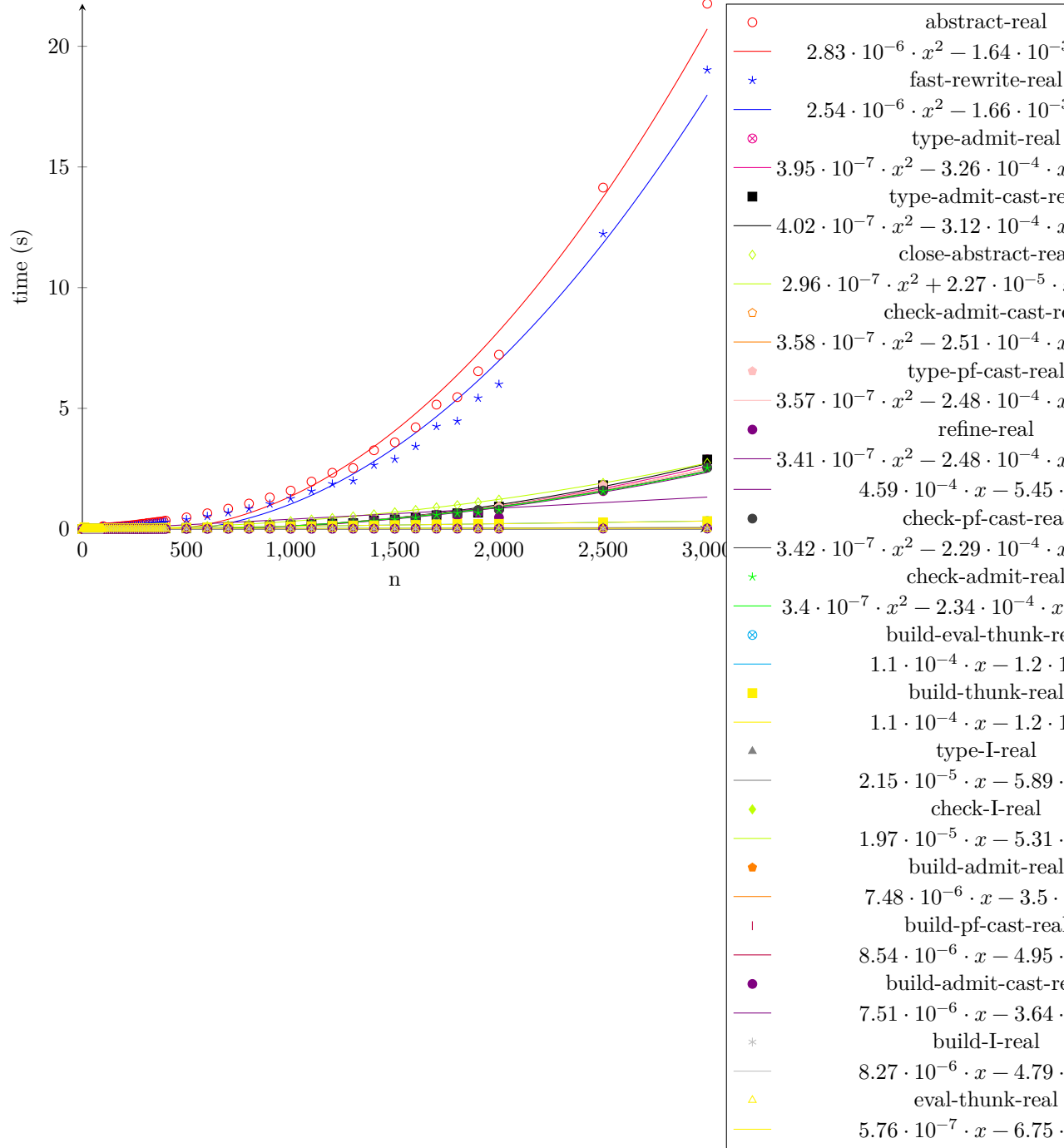
eval-thunk-real
$5.76 \cdot 10^{-7} \cdot x - 6.75 \cdot$

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

19