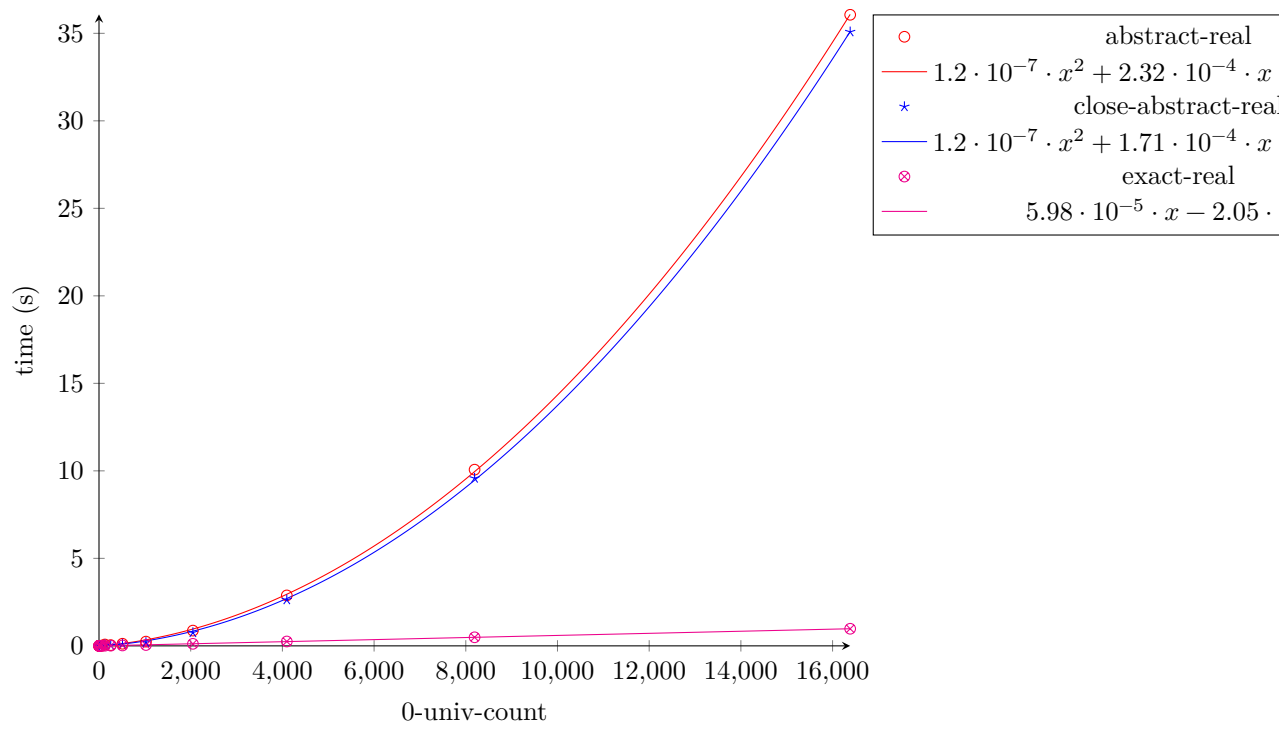Figure 1: timing-pattern

1

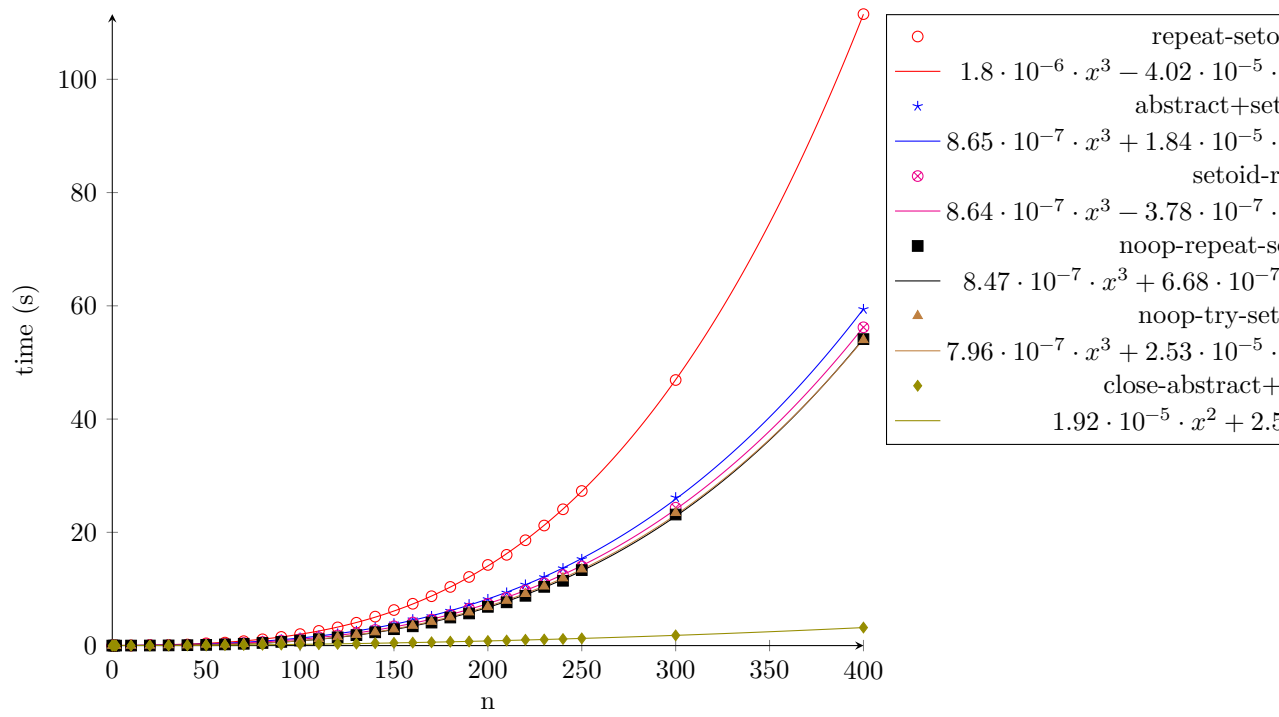Figure 2: timing-n-polymorphic-universes param-1-n 0

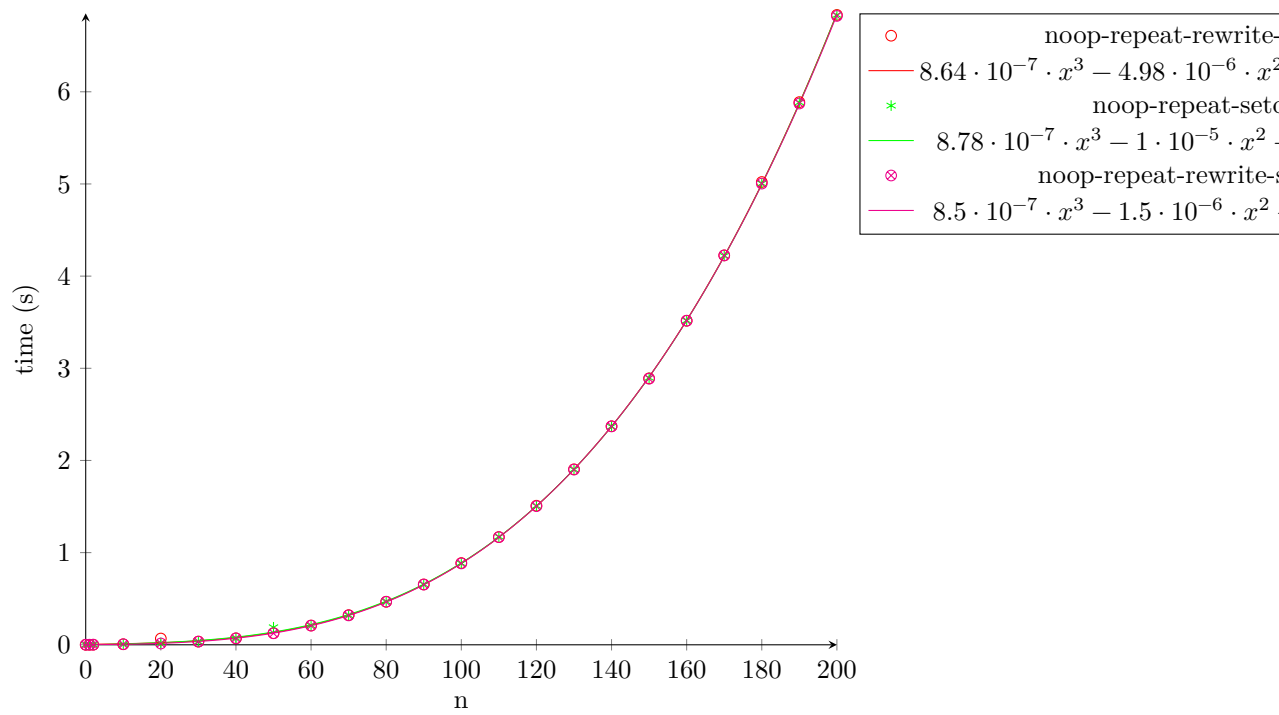Figure 3: timing-repeat-setoid-rewrite-under-binders

3

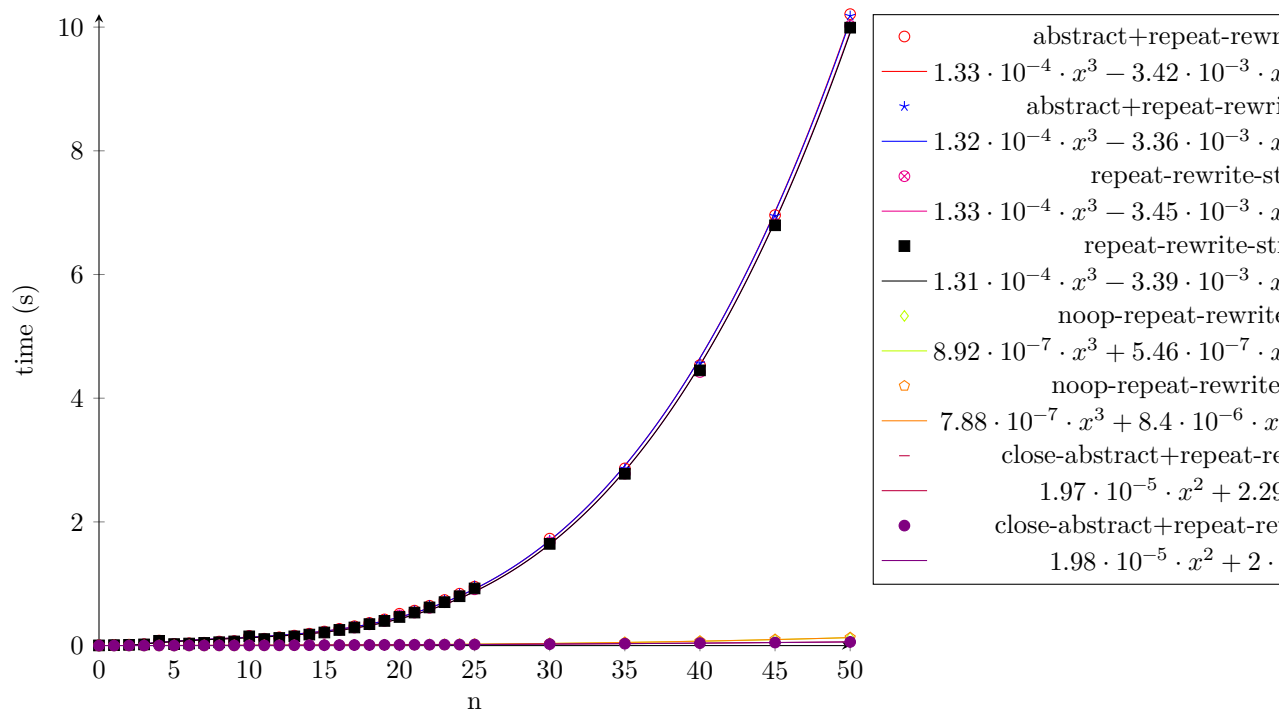Figure 4: timing-repeat-setoid-rewrite-under-binders-noop

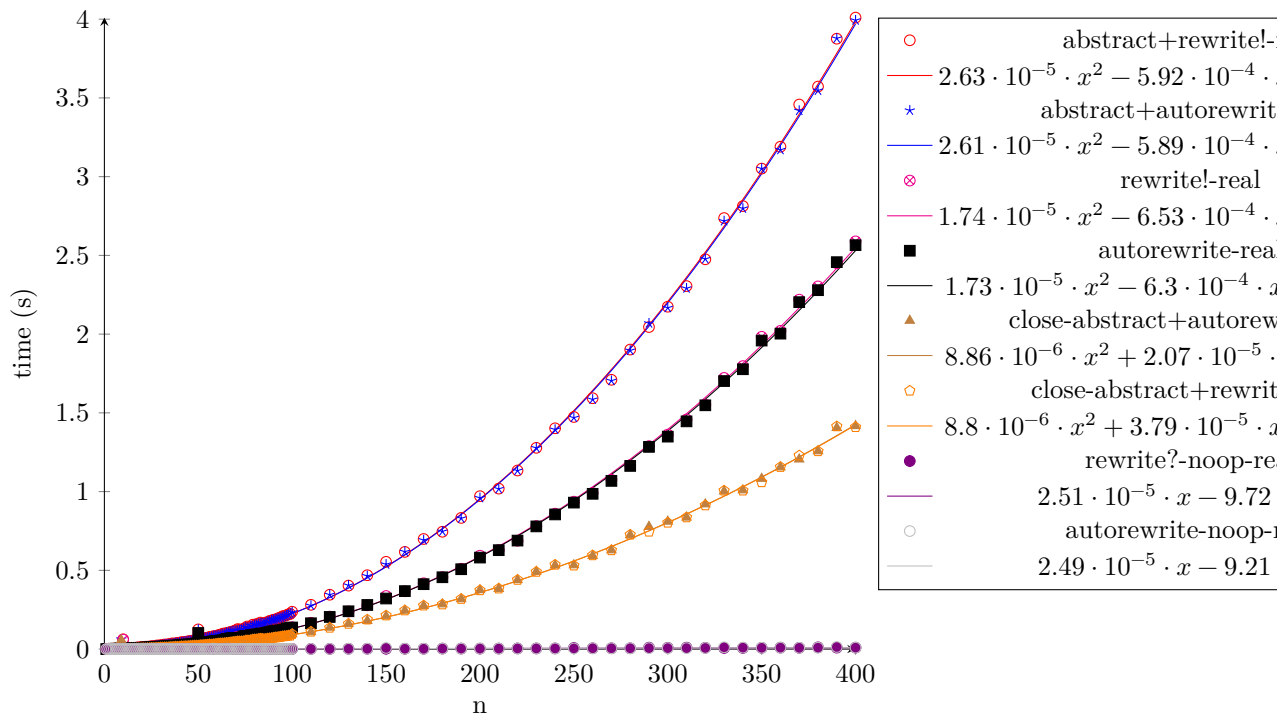Figure 5: timing-rewrite-strat-under-binders

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

abstract+rewrite!-
$2.63 \cdot 10^{-5} \cdot x^2 - 5.92 \cdot 10^{-4} \cdot$

abstract+autorewrit
$2.61 \cdot 10^{-5} \cdot x^2 - 5.89 \cdot 10^{-4} \cdot$

rewrite!-real
$1.74 \cdot 10^{-5} \cdot x^2 - 6.53 \cdot 10^{-4} \cdot$

autorewrite-rea
$1.73 \cdot 10^{-5} \cdot x^2 - 6.3 \cdot 10^{-4} \cdot x$

close-abstract+autorew
$8.86 \cdot 10^{-6} \cdot x^2 + 2.07 \cdot 10^{-5} \cdot$

close-abstract+rewrit
$8.8 \cdot 10^{-6} \cdot x^2 + 3.79 \cdot 10^{-5} \cdot x$

rewrite?-noop-re
$2.51 \cdot 10^{-5} \cdot x - 9.72$

autorewrite-noop-
$2.49 \cdot 10^{-5} \cdot x - 9.21$
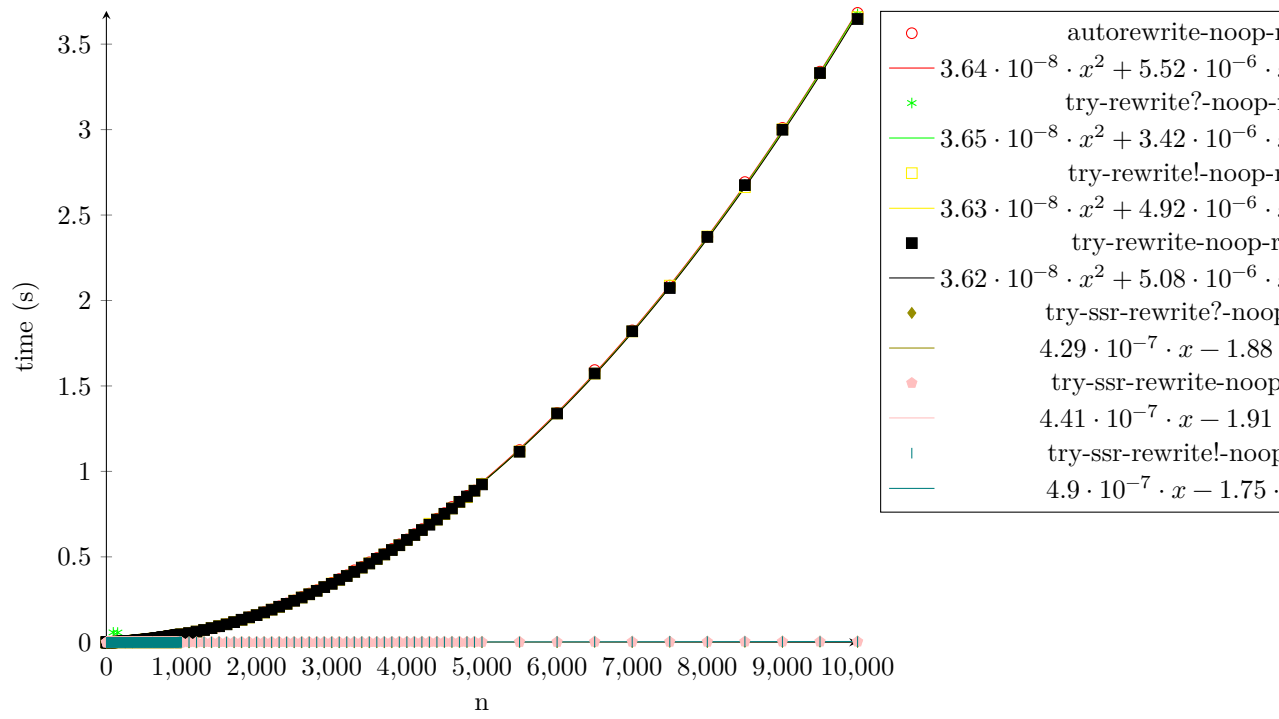
Figure 7: timing-rewrite-repeated-app-autorewrite-noop

The figure contains the following legend entries:

- autorewrite-noop-r
- $3.64 \cdot 10^{-8} \cdot x^2 + 5.52 \cdot 10^{-6} \cdot x$
- try-rewrite?-noop-
- $3.65 \cdot 10^{-8} \cdot x^2 + 3.42 \cdot 10^{-6} \cdot x$
- try-rewrite!-noop-r
- $3.63 \cdot 10^{-8} \cdot x^2 + 4.92 \cdot 10^{-6} \cdot x$
- try-rewrite-noop-r
- $3.62 \cdot 10^{-8} \cdot x^2 + 5.08 \cdot 10^{-6} \cdot x$
- try-ssr-rewrite?-noop
- $4.29 \cdot 10^{-7} \cdot x - 1.88$
- try-ssr-rewrite-noop
- $4.41 \cdot 10^{-7} \cdot x - 1.91$
- try-ssr-rewrite!-noop
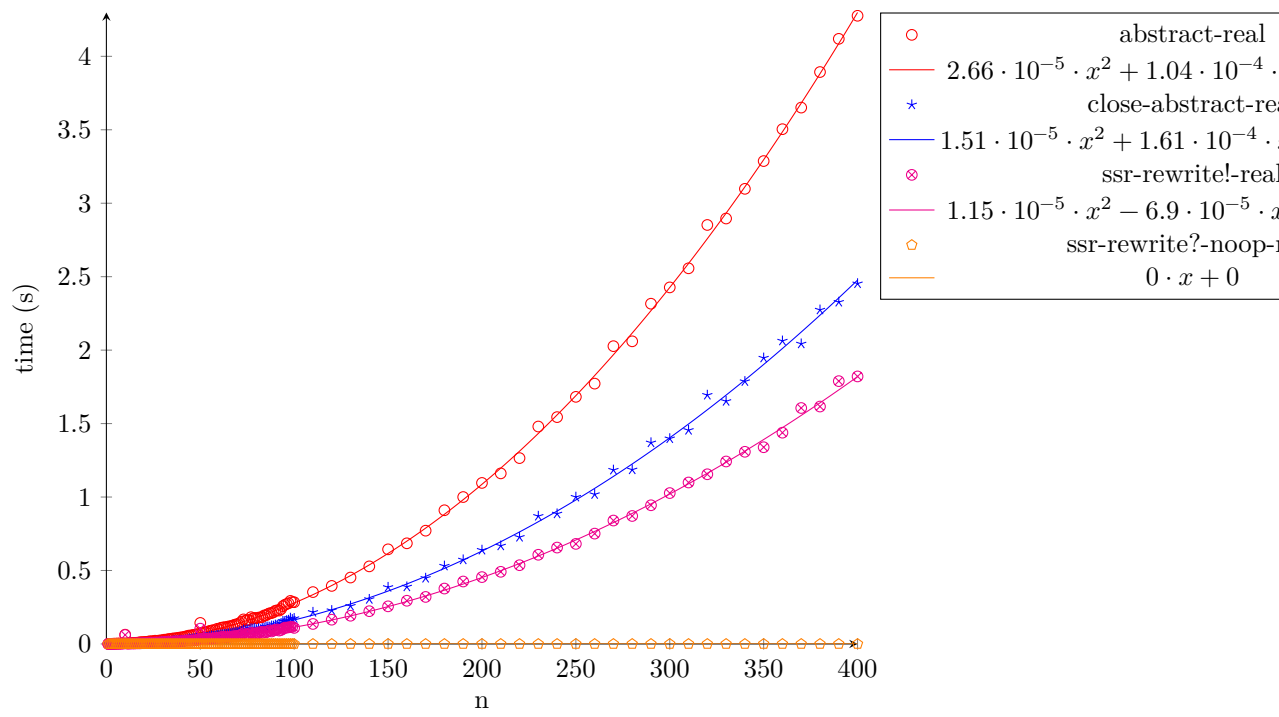- $4.9 \cdot 10^{-7} \cdot x - 1.75$

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

8
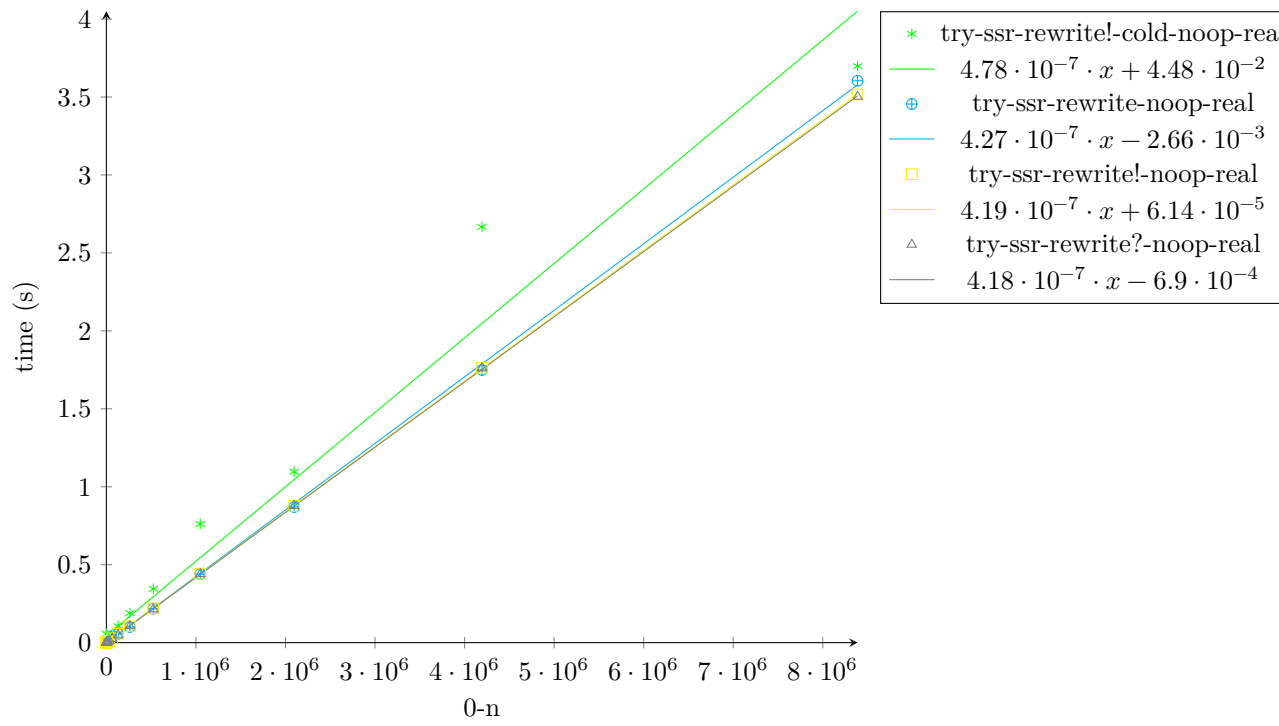
Figure 9: timing-rewrite-repeated-app-ssrrewrite-noop param-1-lgn 1

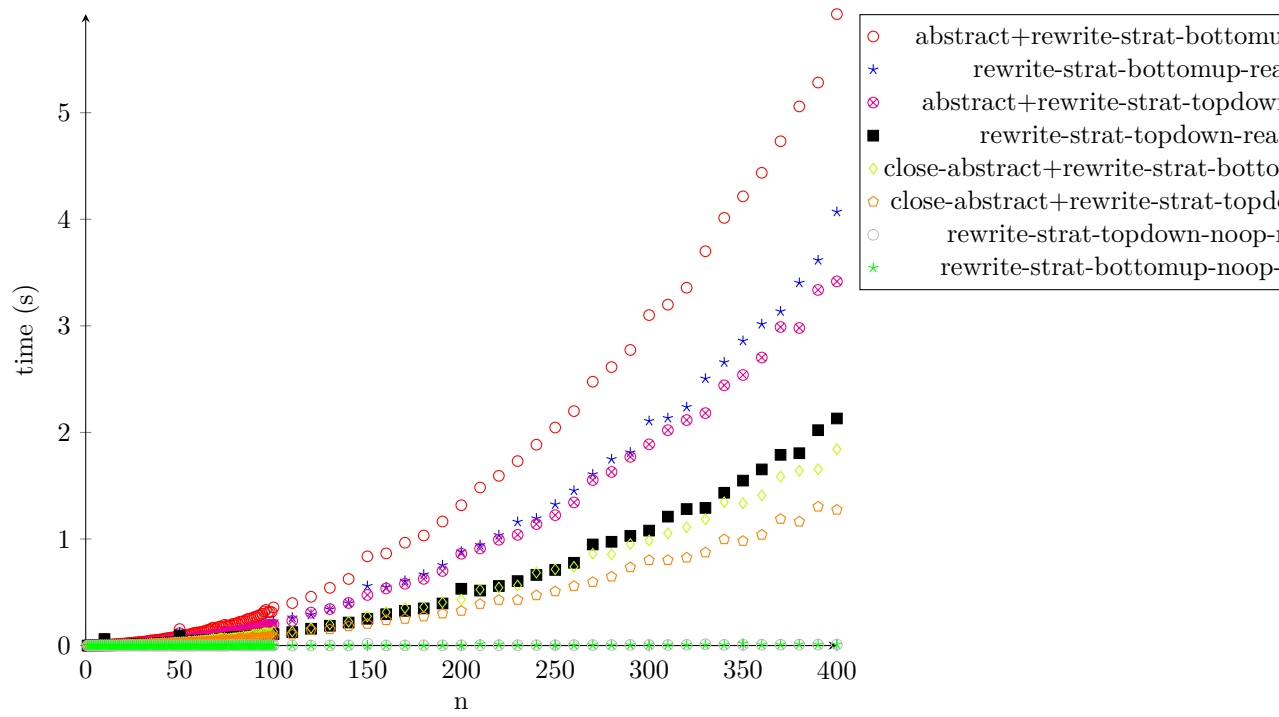Figure 10: timing-rewrite-repeated-app-rewrite-strat

The plot legend contains the following entries:

- 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-topdown-noop-...
- rewrite-strat-bottomup-noop-...

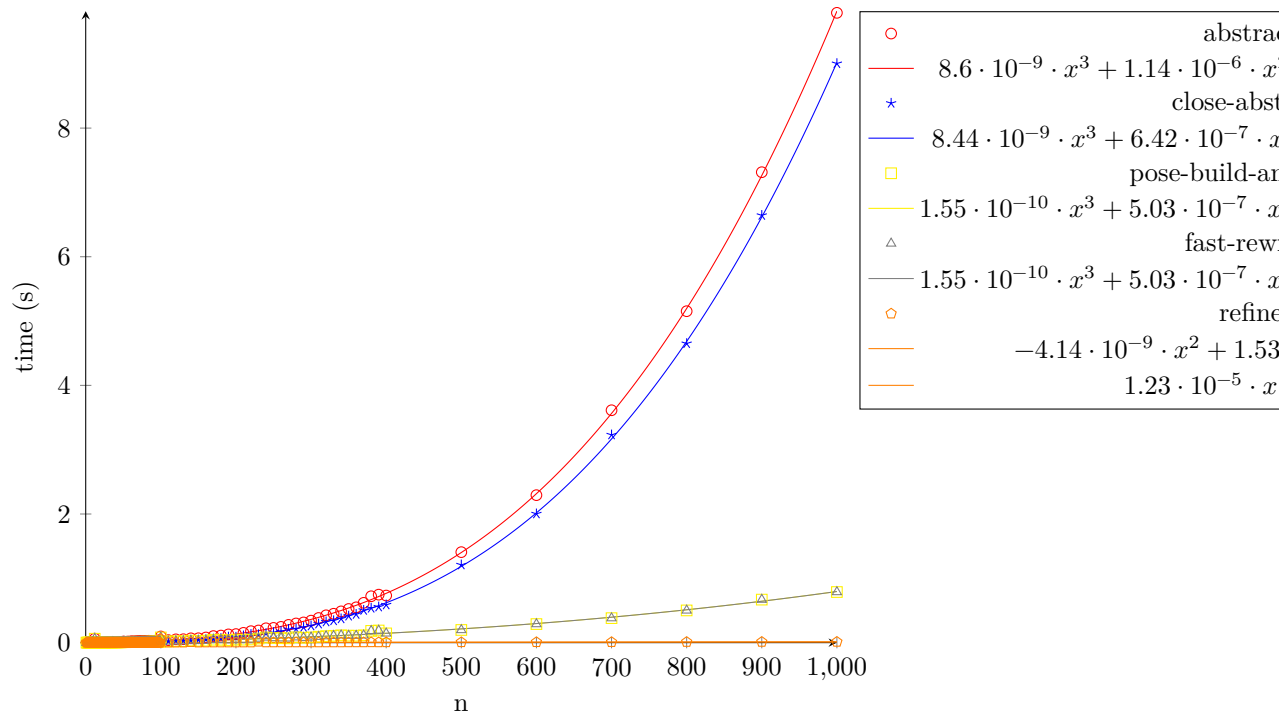Axis labels: time (s) on the vertical axis, n on the horizontal axis.

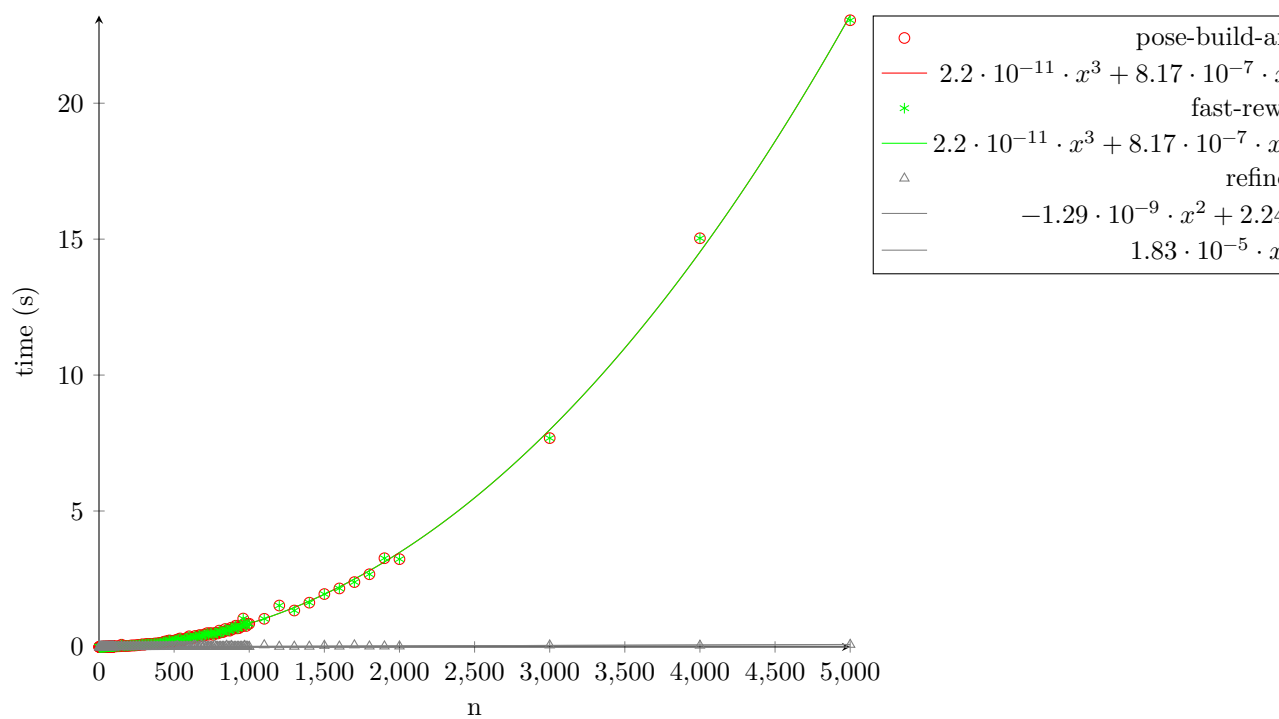Figure 11: timing-rewrite-repeated-app-fast-rewrite

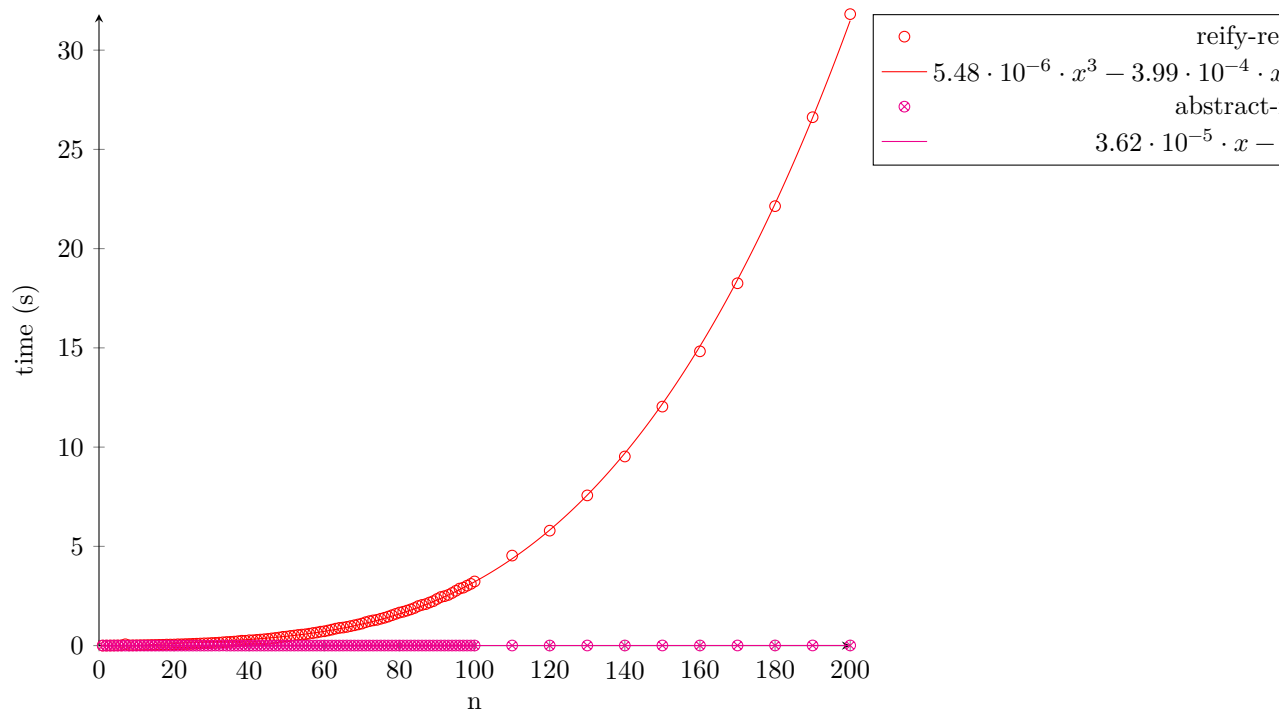Figure 12: timing-rewrite-repeated-app-fast-rewrite-no-abstract

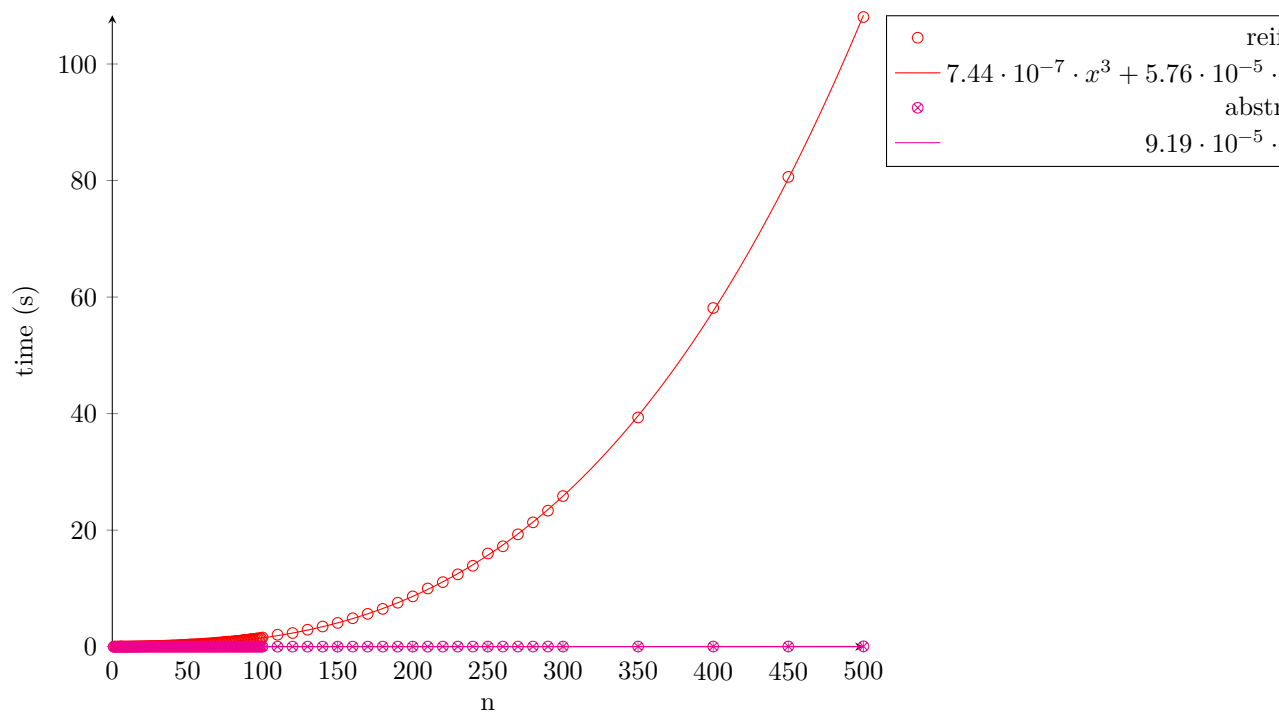Figure 13: timing-typeclass-reification-let-in-HOAS

13

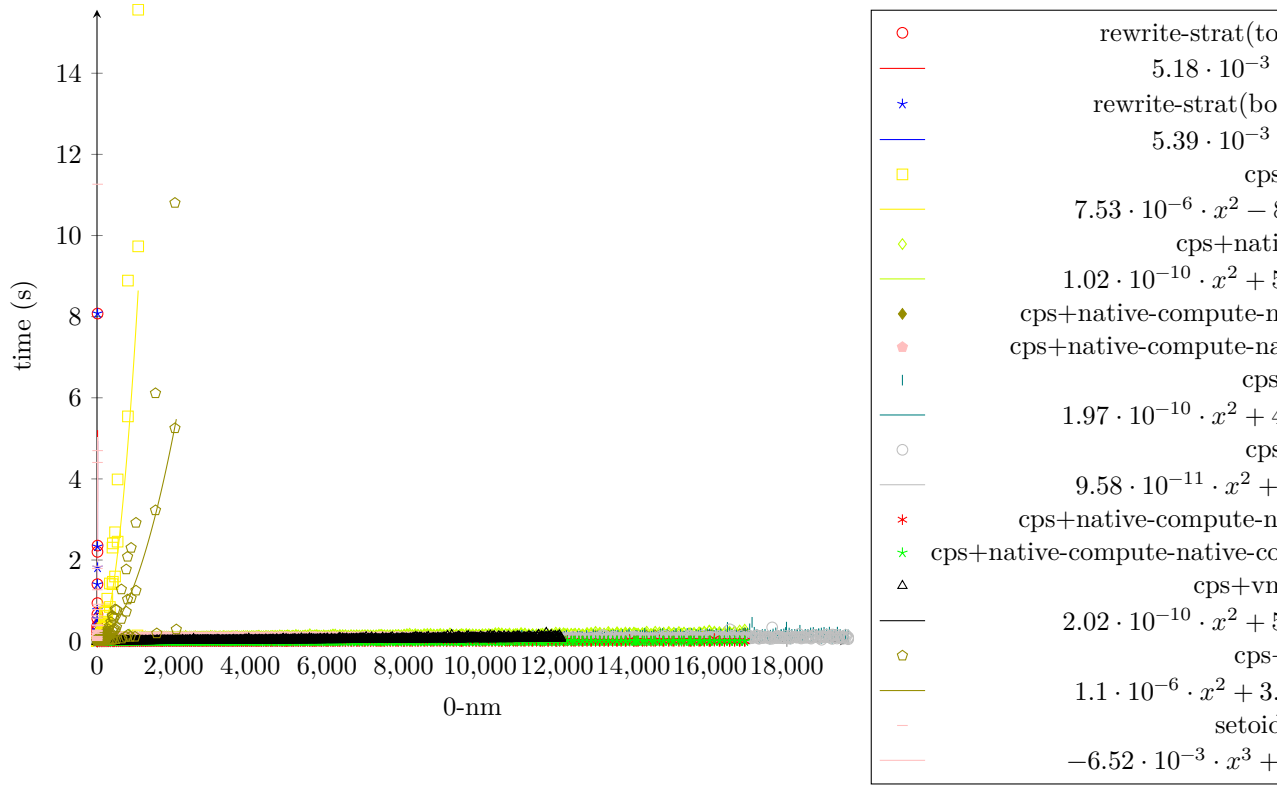Figure 14: timing-typeclass-reification-let-in-PHOAS

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

The chart legend contains the following entries:

- rewrite-strat(to...
  $5.18 \cdot 10^{-3}$
- rewrite-strat(bo...
  $5.39 \cdot 10^{-3}$
- cps
  $7.53 \cdot 10^{-6} \cdot x^2 - 8$
- cps+nati...
  $1.02 \cdot 10^{-10} \cdot x^2 + 5$
- cps+native-compute-n...
- cps+native-compute-na...
- cps
  $1.97 \cdot 10^{-10} \cdot x^2 + 4$
- cps
  $9.58 \cdot 10^{-11} \cdot x^2 +$
- cps+native-compute-n...
- cps+native-compute-native-co...
- cps+vm...
  $2.02 \cdot 10^{-10} \cdot x^2 + 5$
- cps-...
  $1.1 \cdot 10^{-6} \cdot x^2 + 3.$
- setoid...
  $-6.52 \cdot 10^{-3} \cdot x^3 +$

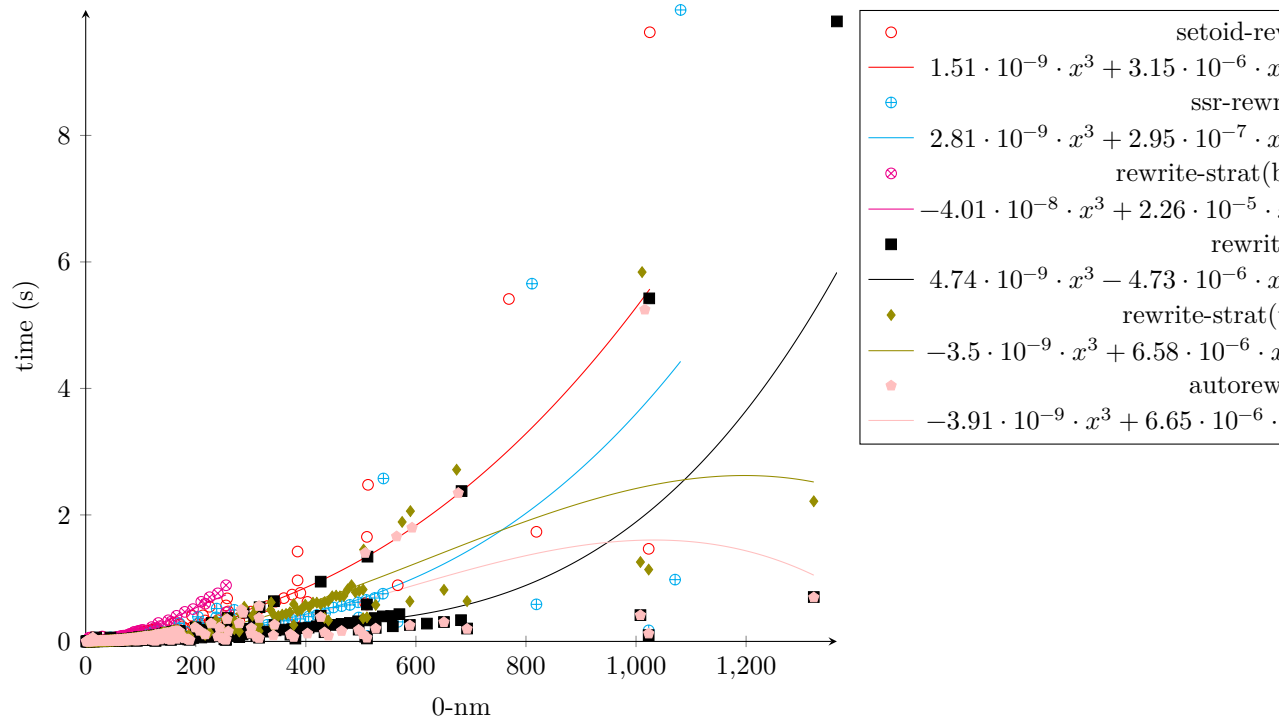The plot axes are labeled "time (s)" (vertical) and "0-nm" (horizontal).

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
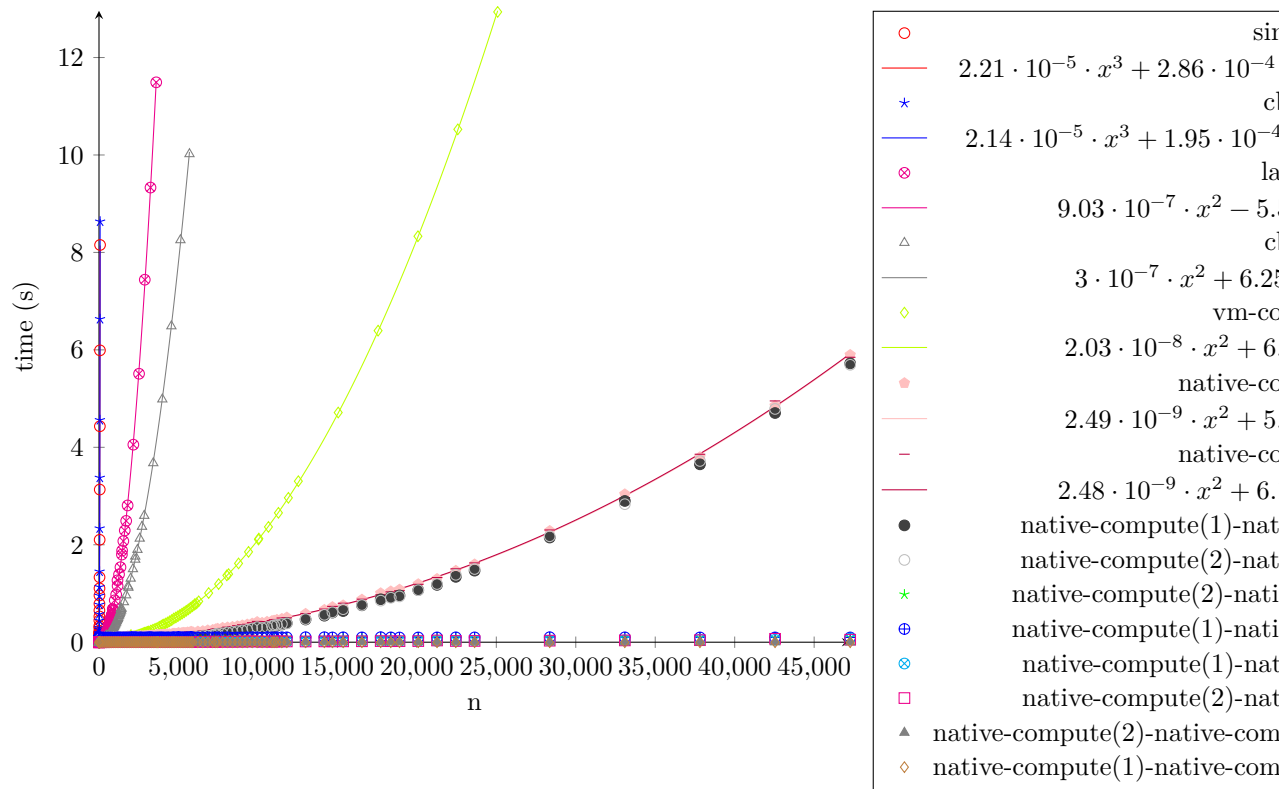
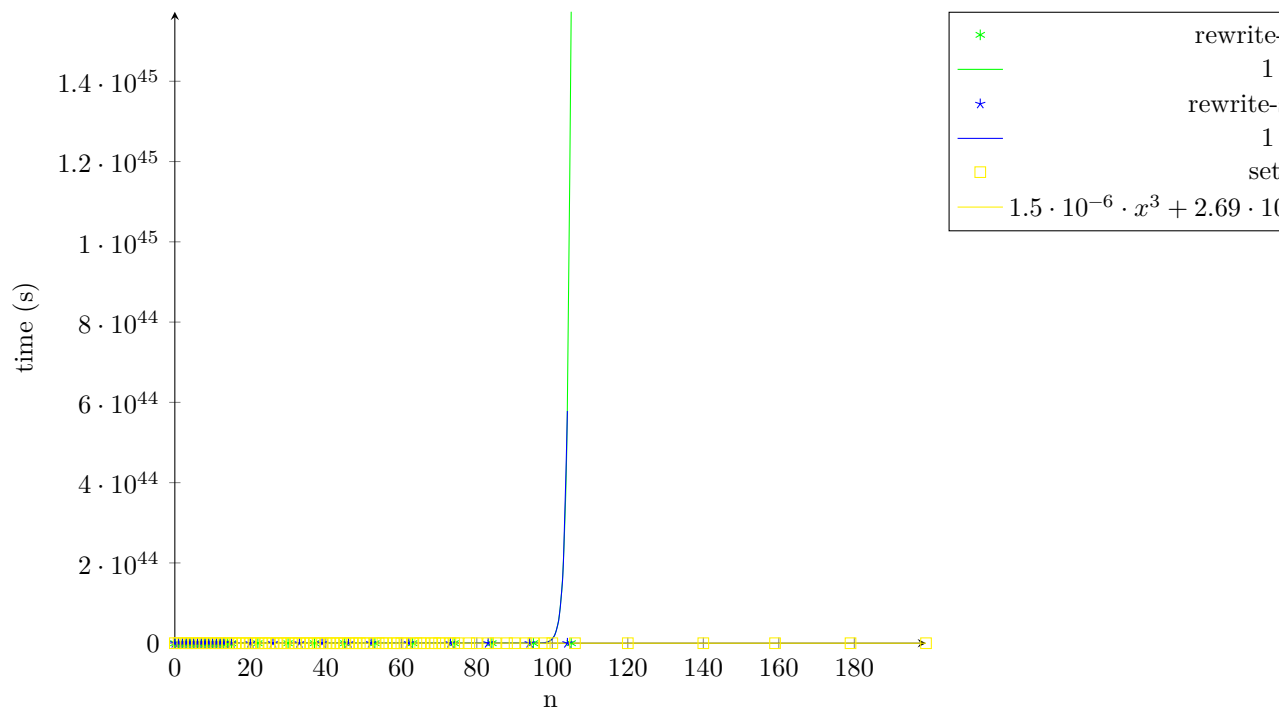Figure 17: timing-sieve-of-eratosthenes
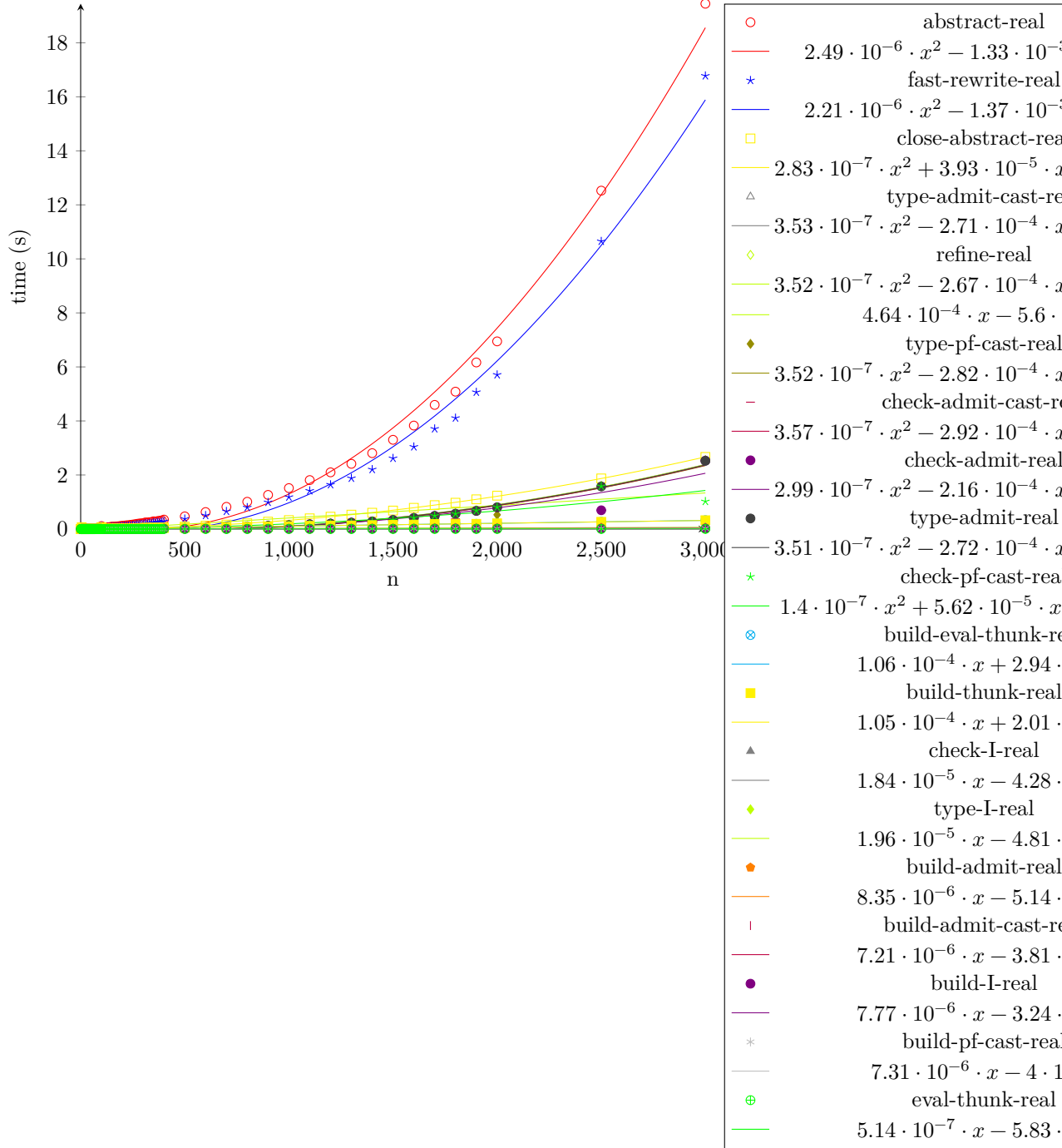
Figure 18: timing-rewrite-under-lets-plus-0

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