Figure 1: timing-pattern

time (s)

30

25

20

15

10

5

0

0   2,000   4,000   6,000   8,000   10,000   12,000   14,000   16,000

0-univ-count

abstract-real
$1.09 \cdot 10^{-7} \cdot x^2 + 2.13 \cdot 10^{-4} \cdot x$

abstract-user
$1.09 \cdot 10^{-7} \cdot x^2 + 2.06 \cdot 10^{-4} \cdot x$

close-abstract-real
$1.09 \cdot 10^{-7} \cdot x^2 + 1.53 \cdot 10^{-4} \cdot x$

close-abstract-user
$1.09 \cdot 10^{-7} \cdot x^2 + 1.47 \cdot 10^{-4} \cdot x$

exact-real
$5.62 \cdot 10^{-5} \cdot x - 2.82$

exact-user
$5.49 \cdot 10^{-5} \cdot x - 3.41$

abstract-sys

close-abstract-sys

exact-sys

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

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

time (s)

$9.17 \cdot 10^{-7} \cdot x^3 - 2.46 \cdot 10^{-5} \cdot x^2$

$9.11 \cdot 10^{-7} \cdot x^3 - 2.28 \cdot 10^{-5} \cdot x^2$

$8.37 \cdot 10^{-7} \cdot x^3 - 1.56 \cdot 10^{-6} \cdot x^2$

$8.39 \cdot 10^{-7} \cdot x^3 - 2.43 \cdot 10^{-6} \cdot x^2$

$7.83 \cdot 10^{-7} \cdot x^3 + 1.02 \cdot 10^{-5} \cdot x^2$

$7.84 \cdot 10^{-7} \cdot x^3 + 1 \cdot 10^{-5} \cdot x^2$

noop-repeat-seto

noop-repeat-seto

noop-repeat-rewrite-s

noop-repeat-rewrite-s

noop-repeat-rewrite-

noop-repeat-rewrite-

noop-repeat-set

noop-repeat-rewrite

noop-repeat-rewrite-

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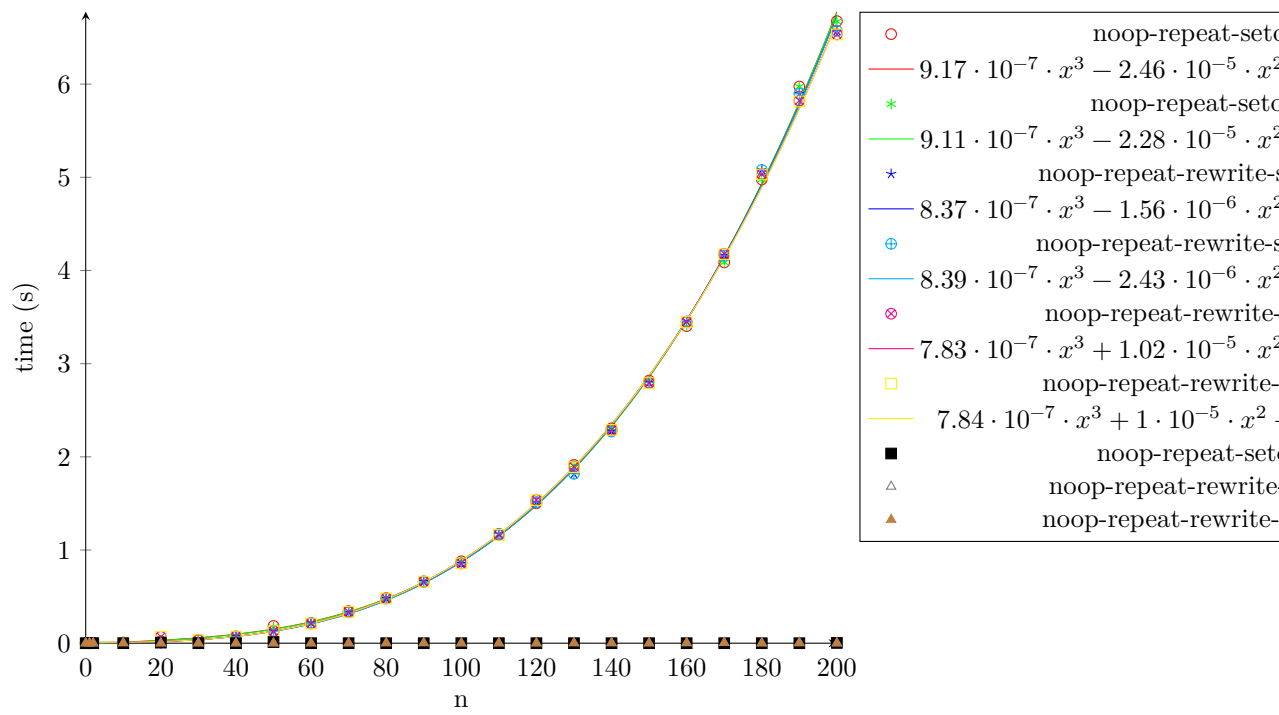
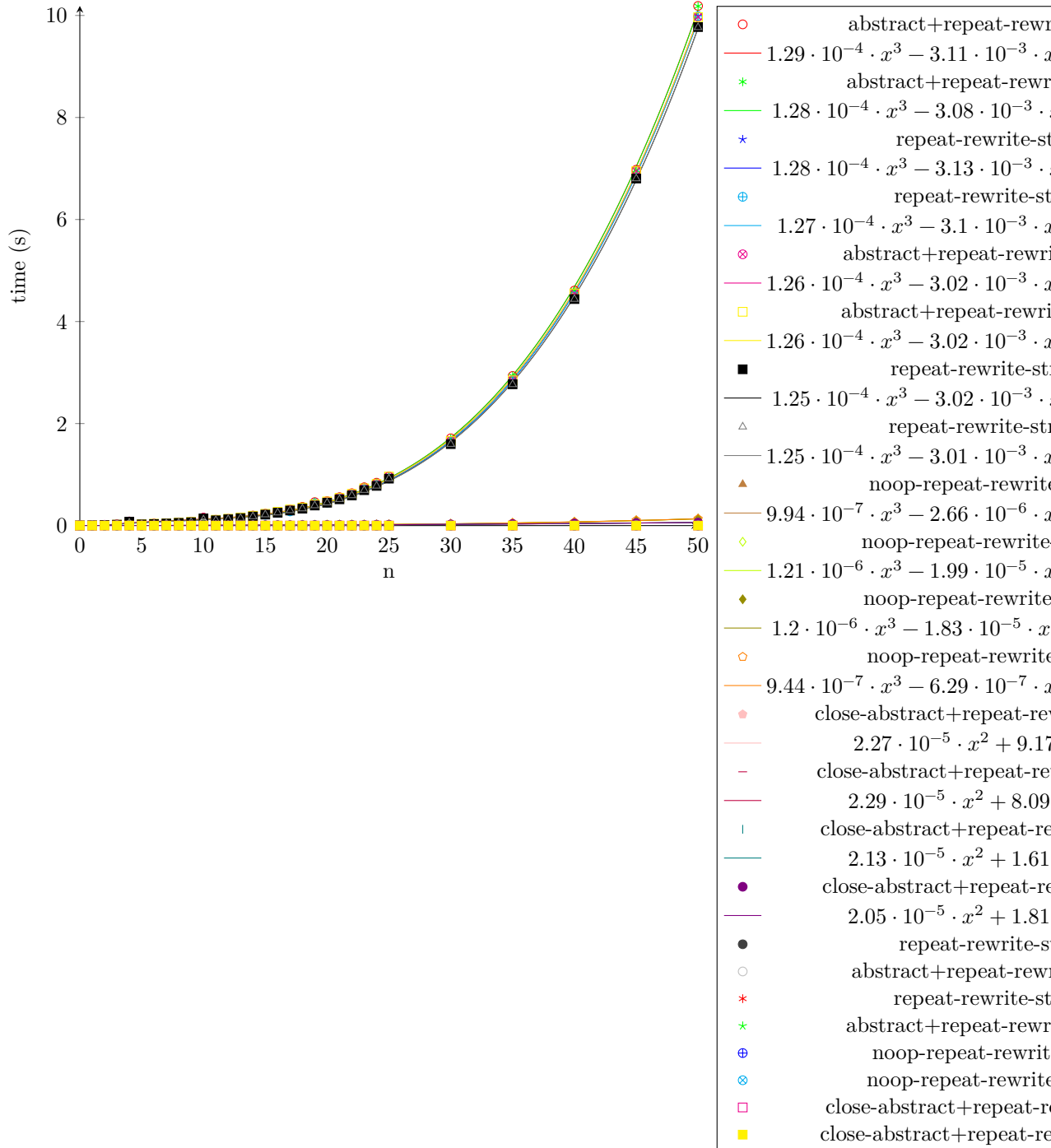Figure 4: timing-repeat-setoid-rewrite-under-binders-noop

4

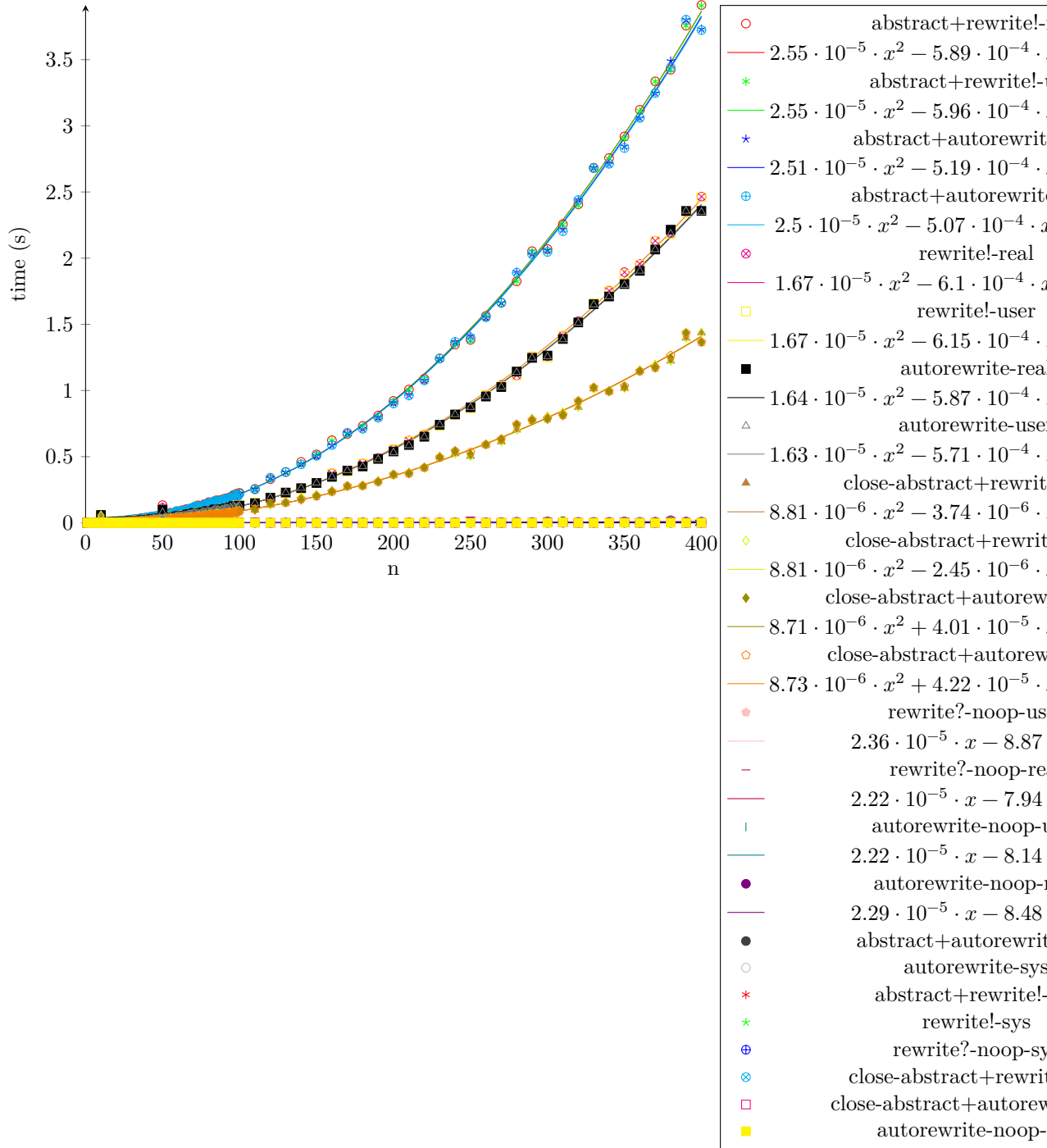Figure 5: timing-rewrite-strat-under-binders

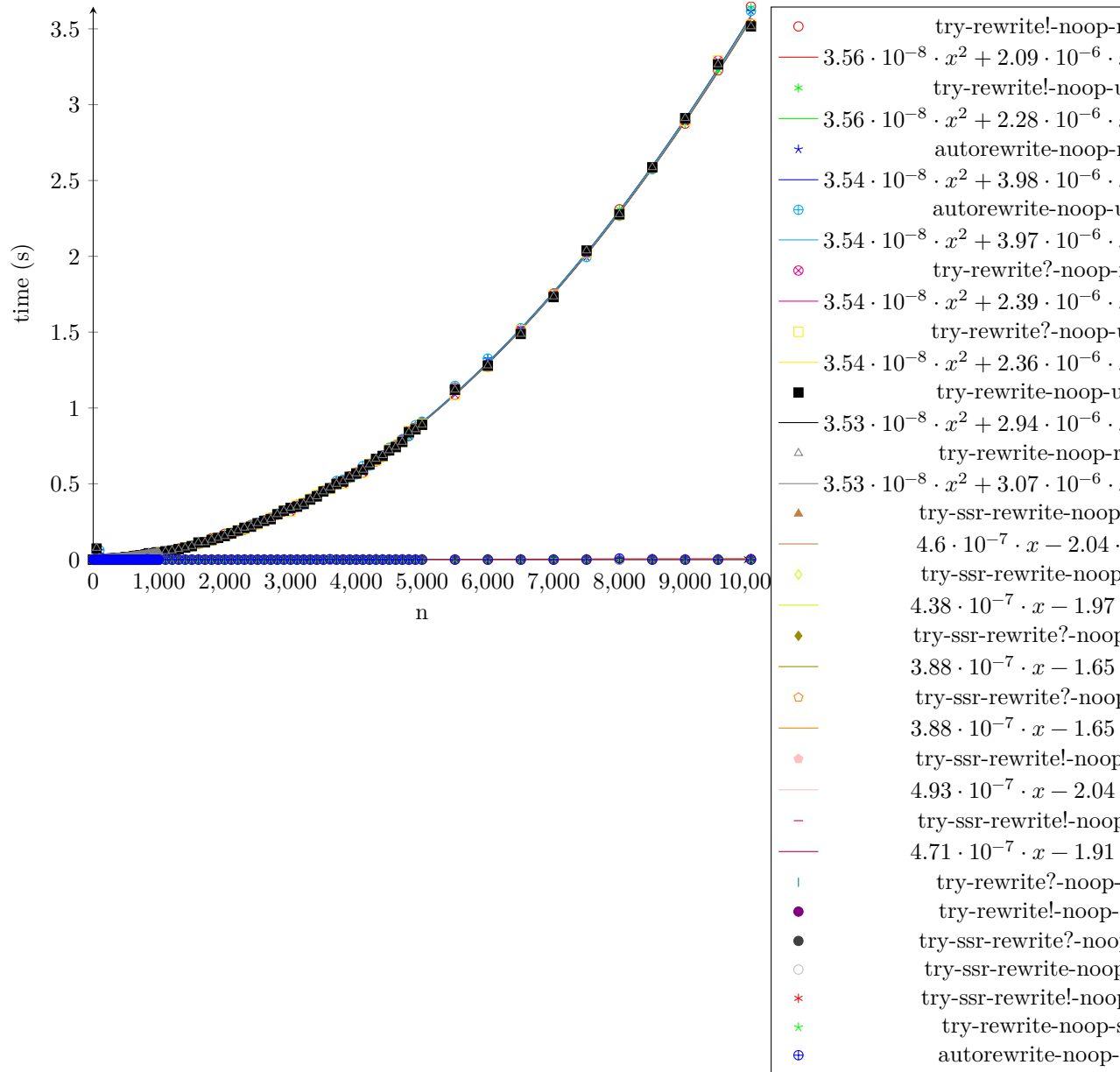Figure 6: timing-rewrite-repeated-app-autorewrite

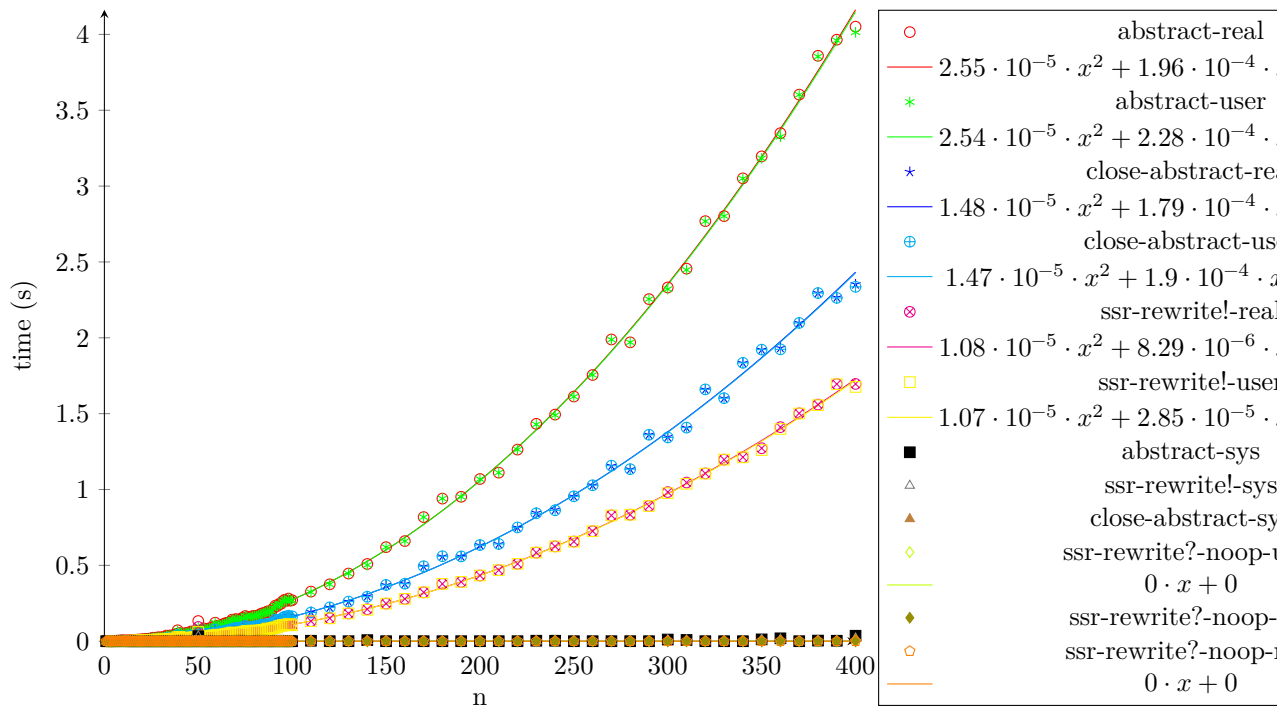Figure 7: timing-rewrite-repeated-app-autorewrite-noop

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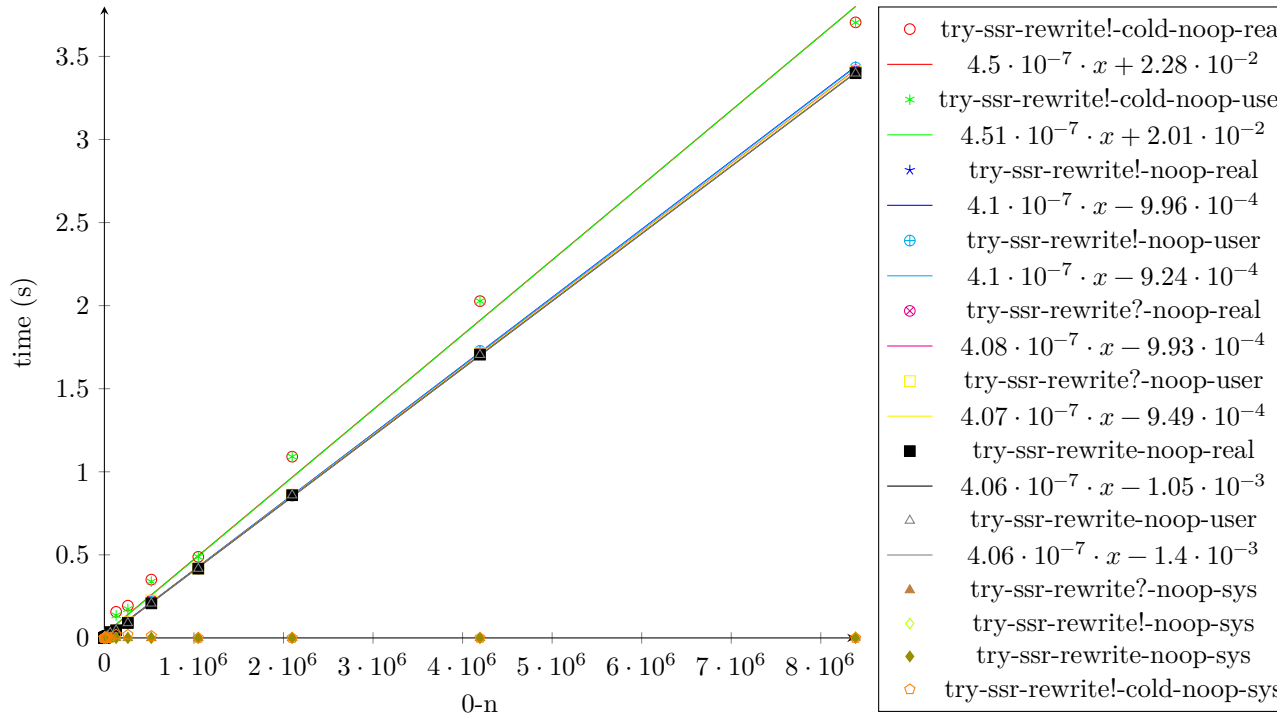
8

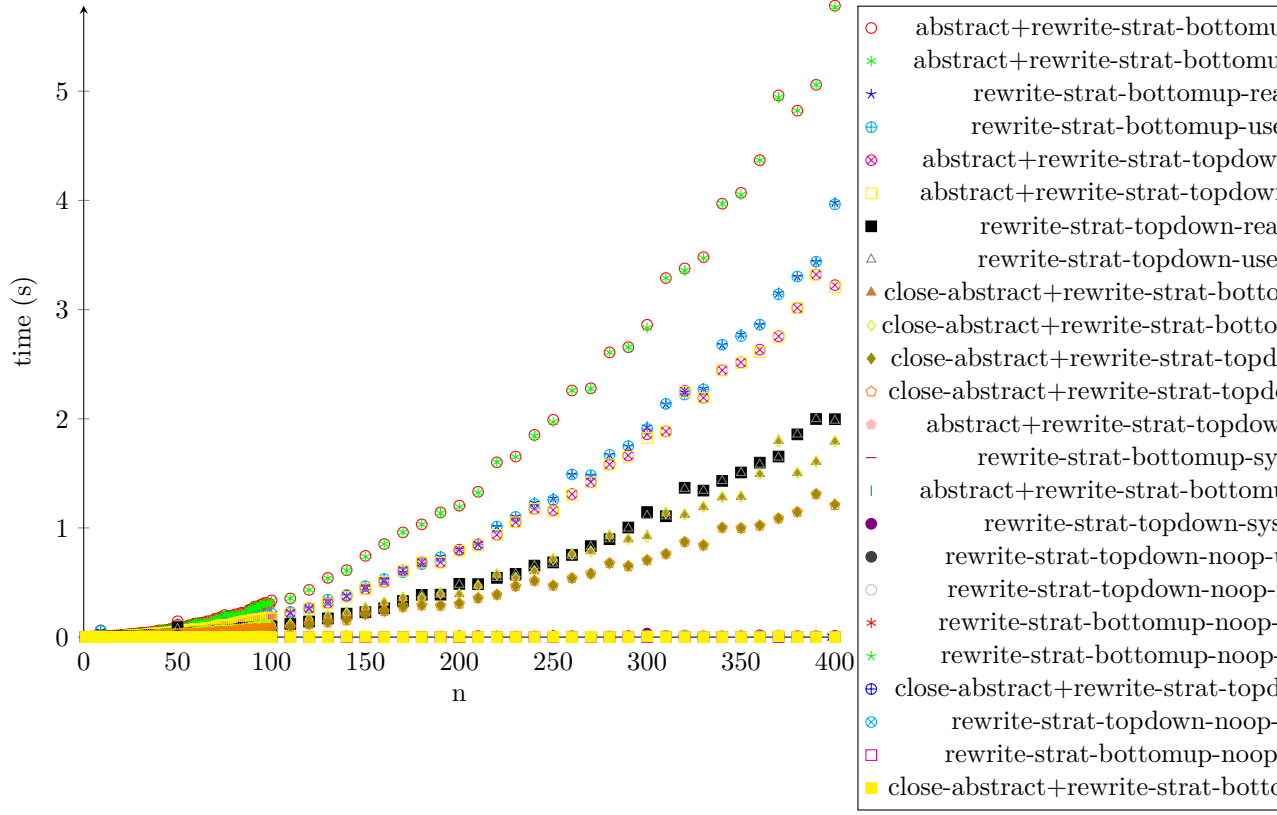Figure 9: timing-rewrite-repeated-app-ssrrewrite-noop param-1-lgn 1

9

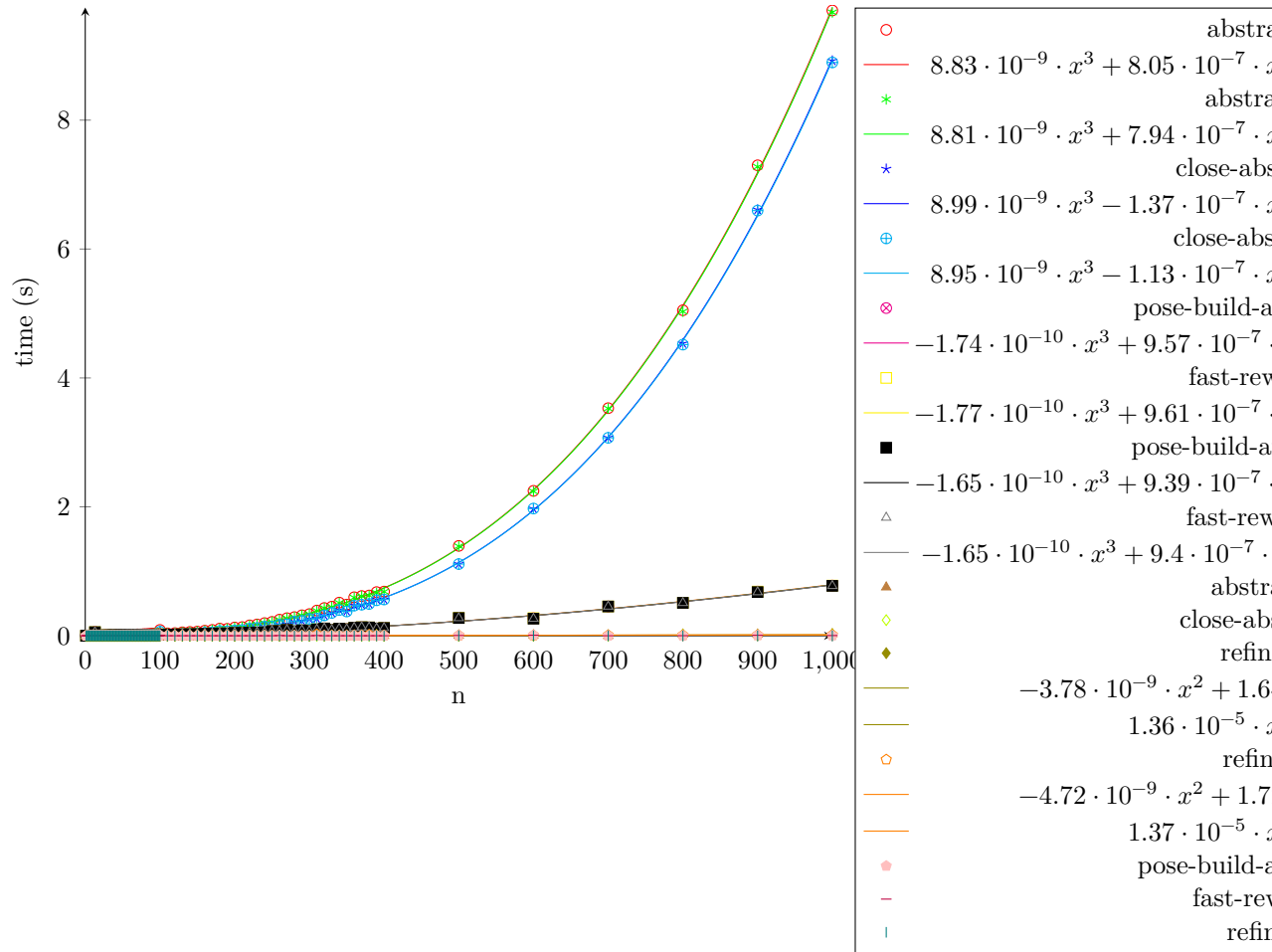Figure 10: timing-rewrite-repeated-app-rewrite-strat
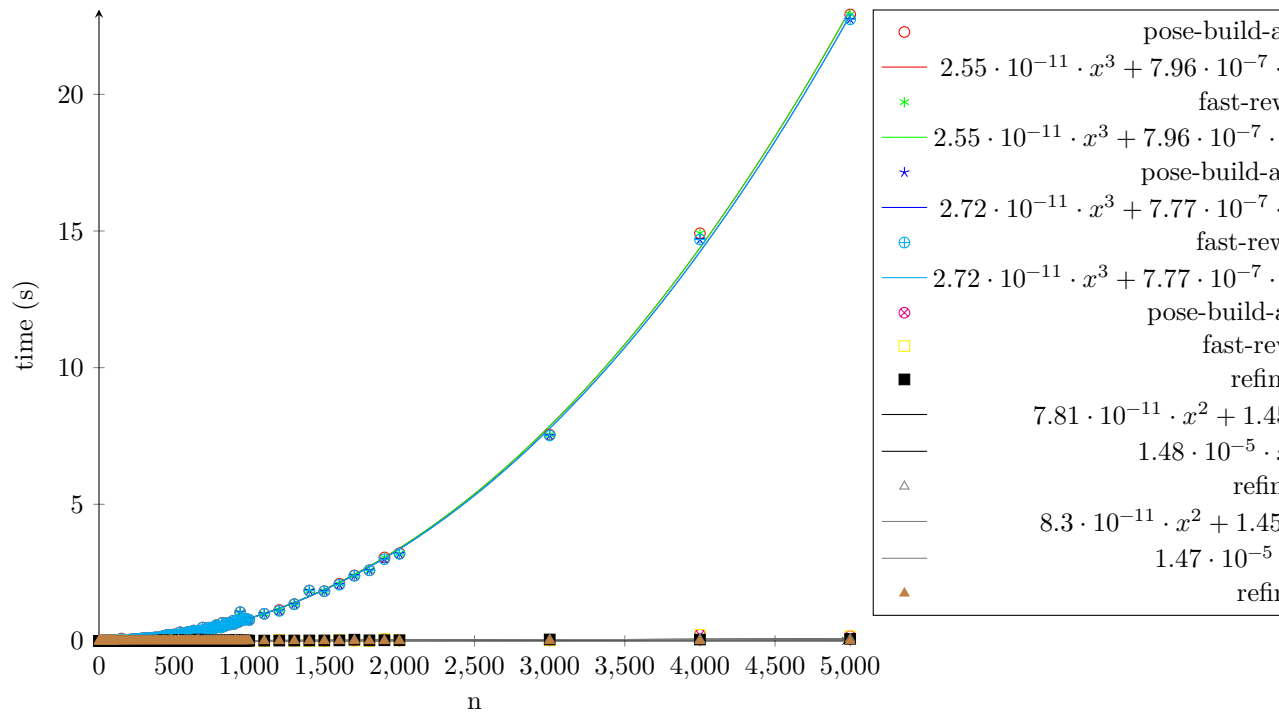
Figure 11: timing-rewrite-repeated-app-fast-rewrite

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

time (s)

20

15

10

5

0

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

n

○ abstract-real
— $2.77 \cdot 10^{-6} \cdot x^2 - 1.84 \cdot 10^{-3}$
∗ abstract-user
— $2.77 \cdot 10^{-6} \cdot x^2 - 1.84 \cdot 10^{-3}$
⋆ fast-rewrite-real
— $2.49 \cdot 10^{-6} \cdot x^2 - 1.88 \cdot 10^{-3}$
⊕ fast-rewrite-user
— $2.49 \cdot 10^{-6} \cdot x^2 - 1.88 \cdot 10^{-3}$
⊗ type-pf-cast-user
— $3.72 \cdot 10^{-7} \cdot x^2 - 3.11 \cdot 10^{-4} \cdot x$
□ type-pf-cast-real
— $3.72 \cdot 10^{-7} \cdot x^2 - 3.1 \cdot 10^{-4} \cdot x$
■ refine-real
— $3.69 \cdot 10^{-7} \cdot x^2 - 3.14 \cdot 10^{-4} \cdot x$
— $4.51 \cdot 10^{-4} \cdot x - 5.55 \cdot$
△ refine-user
— $3.68 \cdot 10^{-7} \cdot x^2 - 3.14 \cdot 10^{-4} \cdot x$
— $4.51 \cdot 10^{-4} \cdot x - 5.54 \cdot$
▲ check-pf-cast-real
— $3.68 \cdot 10^{-7} \cdot x^2 - 3.18 \cdot 10^{-4} \cdot x$
◇ check-pf-cast-user
— $3.68 \cdot 10^{-7} \cdot x^2 - 3.18 \cdot 10^{-4} \cdot x$
◆ check-admit-user
— $3.64 \cdot 10^{-7} \cdot x^2 - 3.06 \cdot 10^{-4} \cdot x$
⬠ check-admit-real
— $3.64 \cdot 10^{-7} \cdot x^2 - 3.06 \cdot 10^{-4} \cdot x$
⬠ check-admit-cast-re
— $3.65 \cdot 10^{-7} \cdot x^2 - 3.01 \cdot 10^{-4} \cdot x$
– check-admit-cast-u
— $3.65 \cdot 10^{-7} \cdot x^2 - 3 \cdot 10^{-4} \cdot x$
| close-abstract-rea
— $2.75 \cdot 10^{-7} \cdot x^2 + 3.43 \cdot 10^{-5} \cdot x$
● close-abstract-use
— $2.76 \cdot 10^{-7} \cdot x^2 + 3.36 \cdot 10^{-5} \cdot x$
● type-admit-cast-us
— $3.22 \cdot 10^{-7} \cdot x^2 - 2.49 \cdot 10^{-4} \cdot x$
○ type-admit-cast-re
— $3.22 \cdot 10^{-7} \cdot x^2 - 2.49 \cdot 10^{-4} \cdot x$
∗ type-admit-user
— $3.26 \cdot 10^{-7} \cdot x^2 - 2.45 \cdot 10^{-4} \cdot x$
∗ type-admit-real
— $3.26 \cdot 10^{-7} \cdot x^2 - 2.46 \cdot 10^{-4} \cdot x$
⊕ build-eval-thunk-us
— $1.04 \cdot 10^{-4} \cdot x - 7.11 \cdot$
⊗ build-eval-thunk-re
— $1.05 \cdot 10^{-4} \cdot x - 6.49 \cdot$
□ build-thunk-user
— $1.03 \cdot 10^{-4} \cdot x - 8.2 \cdot$
■ build-thunk-real
— $1.04 \cdot 10^{-4} \cdot x - 7.58 \cdot$
△ check-1-user