Figure 1: timing-pattern

1

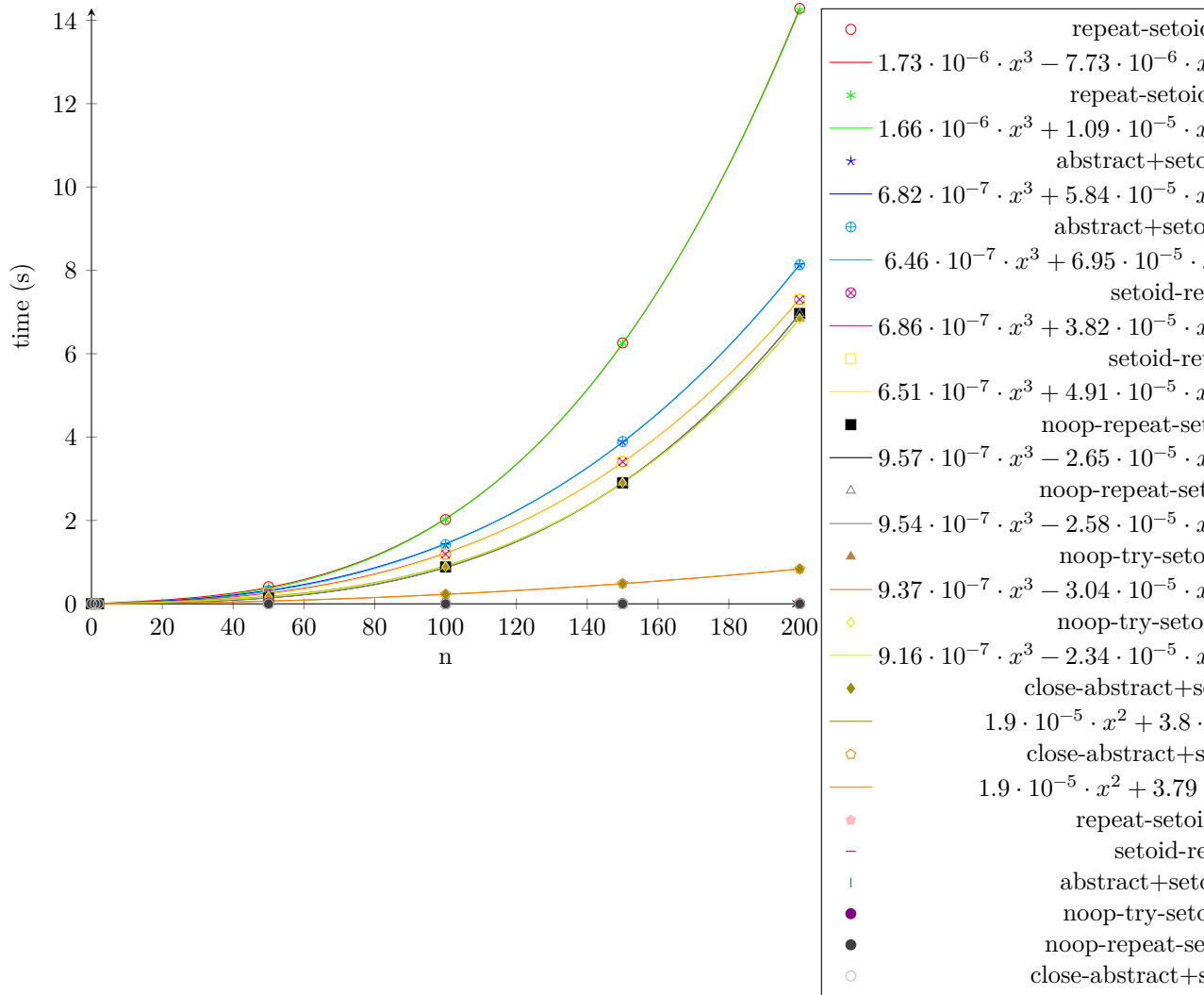Figure 2: timing-n-polymorphic-universes param-1-n 0

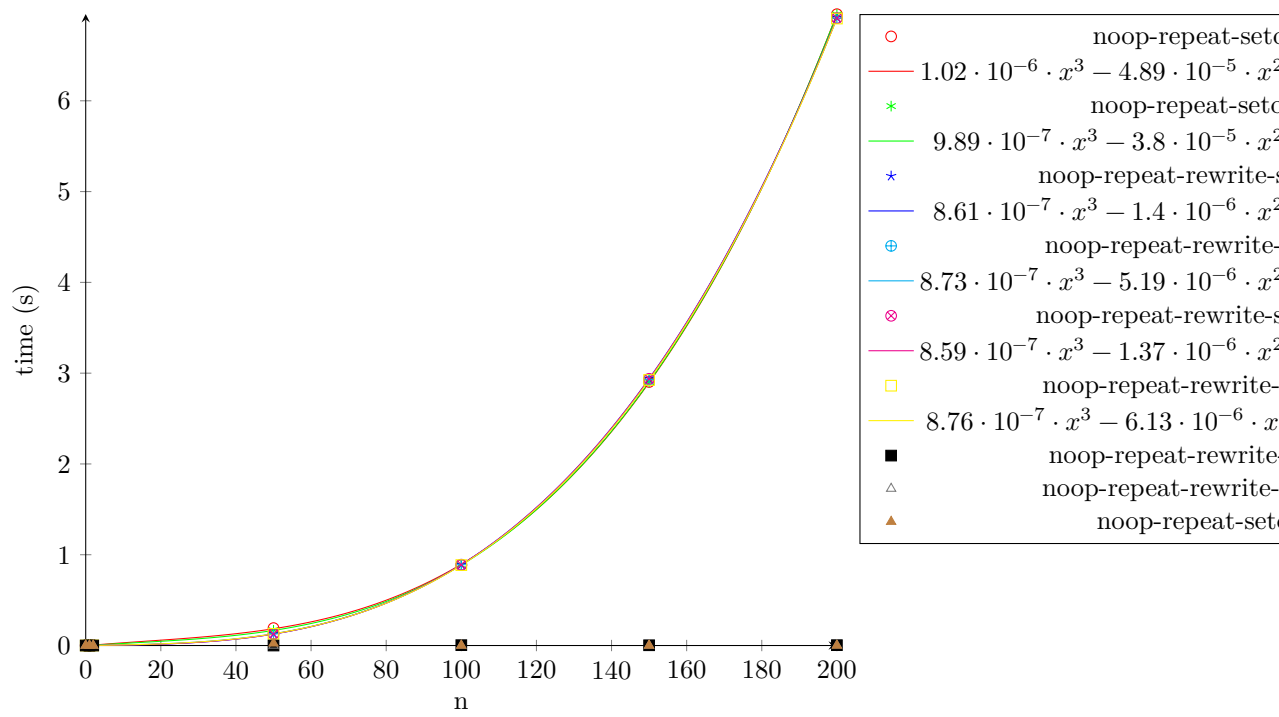Figure 3: timing-repeat-setoid-rewrite-under-binders

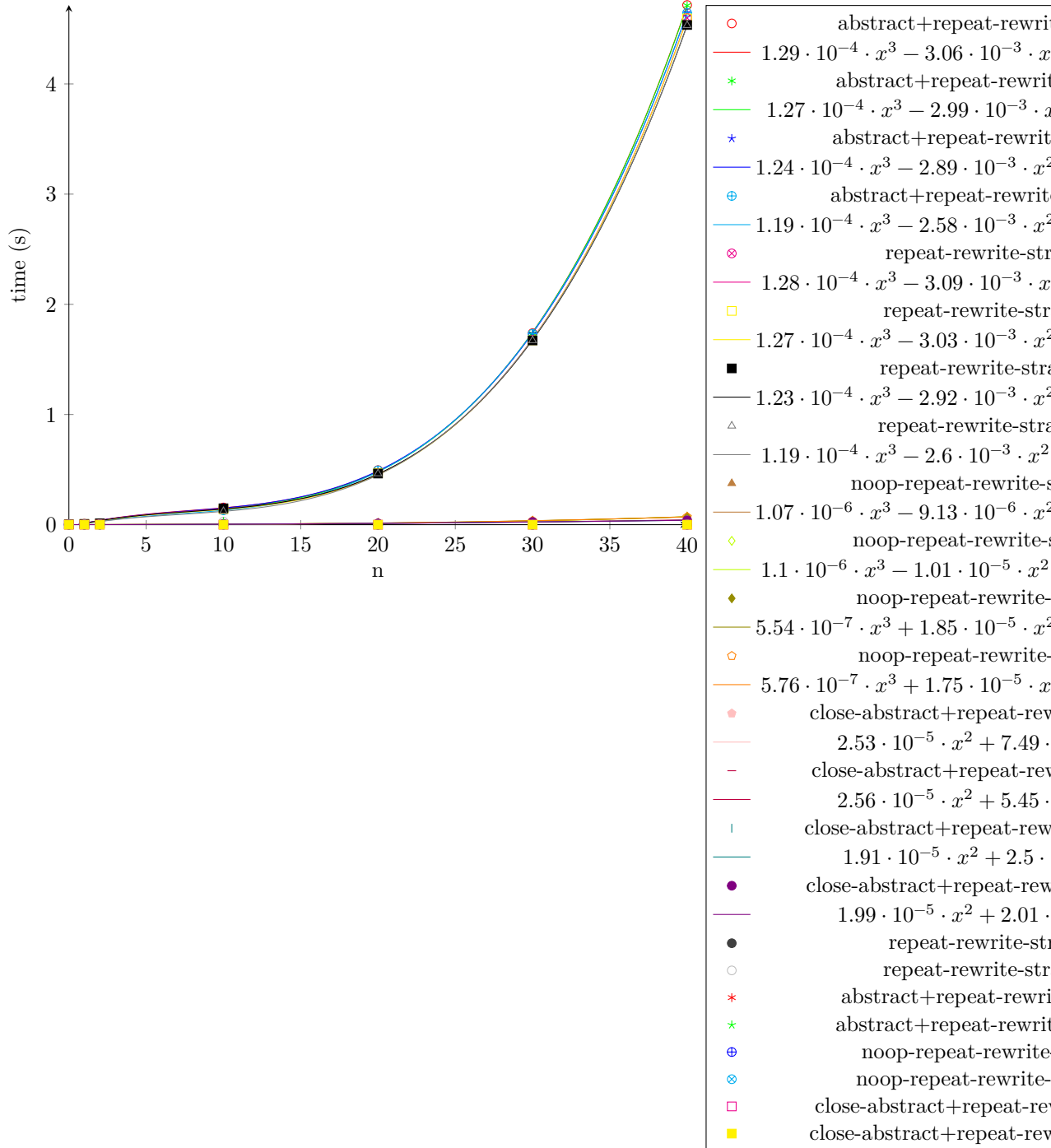Figure 4: timing-repeat-setoid-rewrite-under-binders-noop
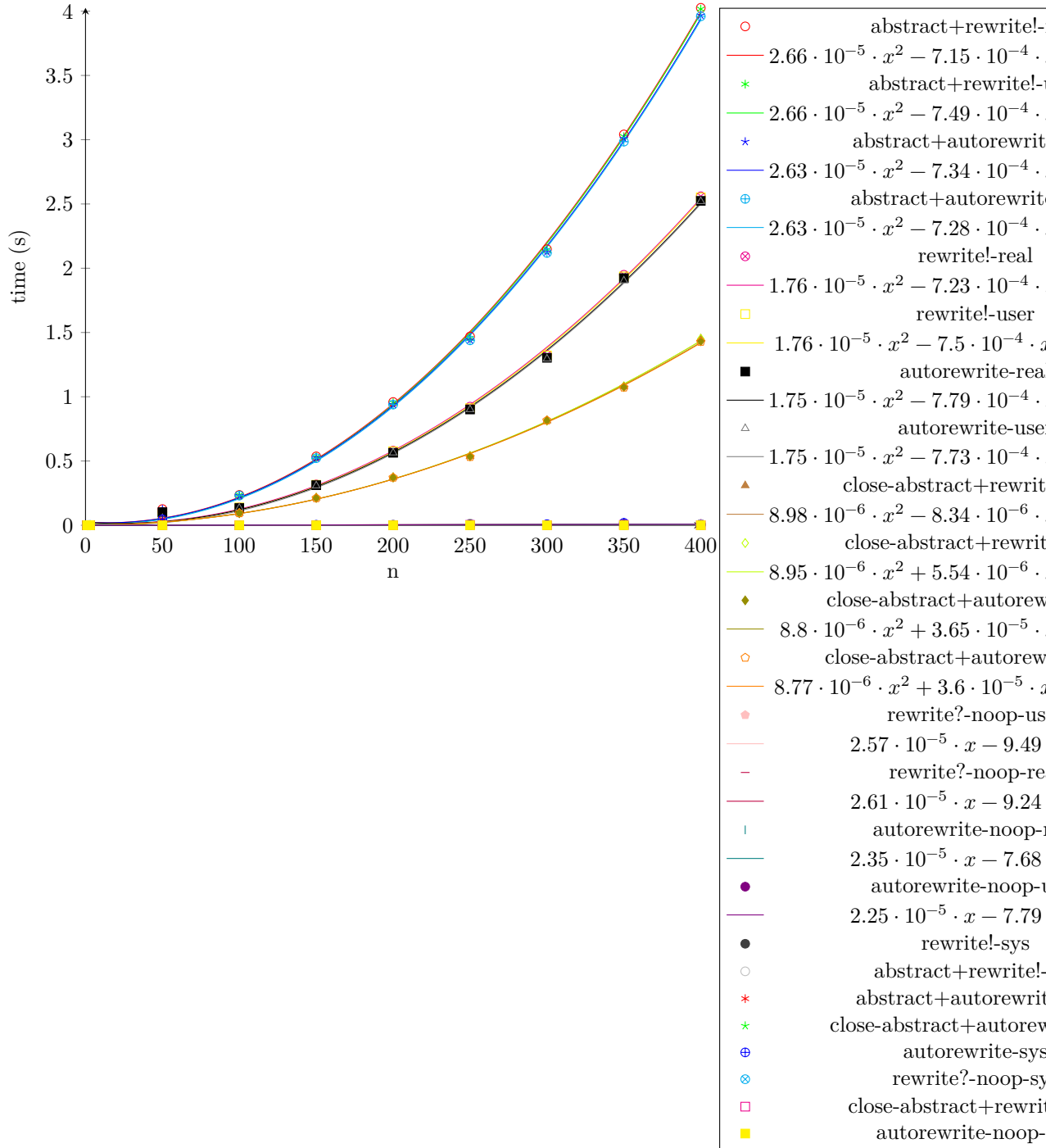
Figure 5: timing-rewrite-strat-under-binders

time (s)

4

3.5

3

2.5

2

1.5

1

0.5

0

0   50   100   150   200   250   300   350   400

n

abstract+rewrite!-
$2.66 \cdot 10^{-5} \cdot x^2 - 7.15 \cdot 10^{-4} \cdot$
abstract+rewrite!-
$2.66 \cdot 10^{-5} \cdot x^2 - 7.49 \cdot 10^{-4} \cdot$
abstract+autorewrit
$2.63 \cdot 10^{-5} \cdot x^2 - 7.34 \cdot 10^{-4} \cdot$
abstract+autorewrit
$2.63 \cdot 10^{-5} \cdot x^2 - 7.28 \cdot 10^{-4} \cdot$
rewrite!-real
$1.76 \cdot 10^{-5} \cdot x^2 - 7.23 \cdot 10^{-4} \cdot$
rewrite!-user
$1.76 \cdot 10^{-5} \cdot x^2 - 7.5 \cdot 10^{-4} \cdot x$
autorewrite-real
$1.75 \cdot 10^{-5} \cdot x^2 - 7.79 \cdot 10^{-4} \cdot$
autorewrite-user
$1.75 \cdot 10^{-5} \cdot x^2 - 7.73 \cdot 10^{-4} \cdot$
close-abstract+rewrit
$8.98 \cdot 10^{-6} \cdot x^2 - 8.34 \cdot 10^{-6} \cdot$
close-abstract+rewrit
$8.95 \cdot 10^{-6} \cdot x^2 + 5.54 \cdot 10^{-6} \cdot$
close-abstract+autorew
$8.8 \cdot 10^{-6} \cdot x^2 + 3.65 \cdot 10^{-5} \cdot$
close-abstract+autorew
$8.77 \cdot 10^{-6} \cdot x^2 + 3.6 \cdot 10^{-5} \cdot x$
rewrite?-noop-us
$2.57 \cdot 10^{-5} \cdot x - 9.49$
rewrite?-noop-re
$2.61 \cdot 10^{-5} \cdot x - 9.24$
autorewrite-noop-
$2.35 \cdot 10^{-5} \cdot x - 7.68$
autorewrite-noop-u
$2.25 \cdot 10^{-5} \cdot x - 7.79$
rewrite!-sys
abstract+rewrite!-
abstract+autorewrit
close-abstract+autorew
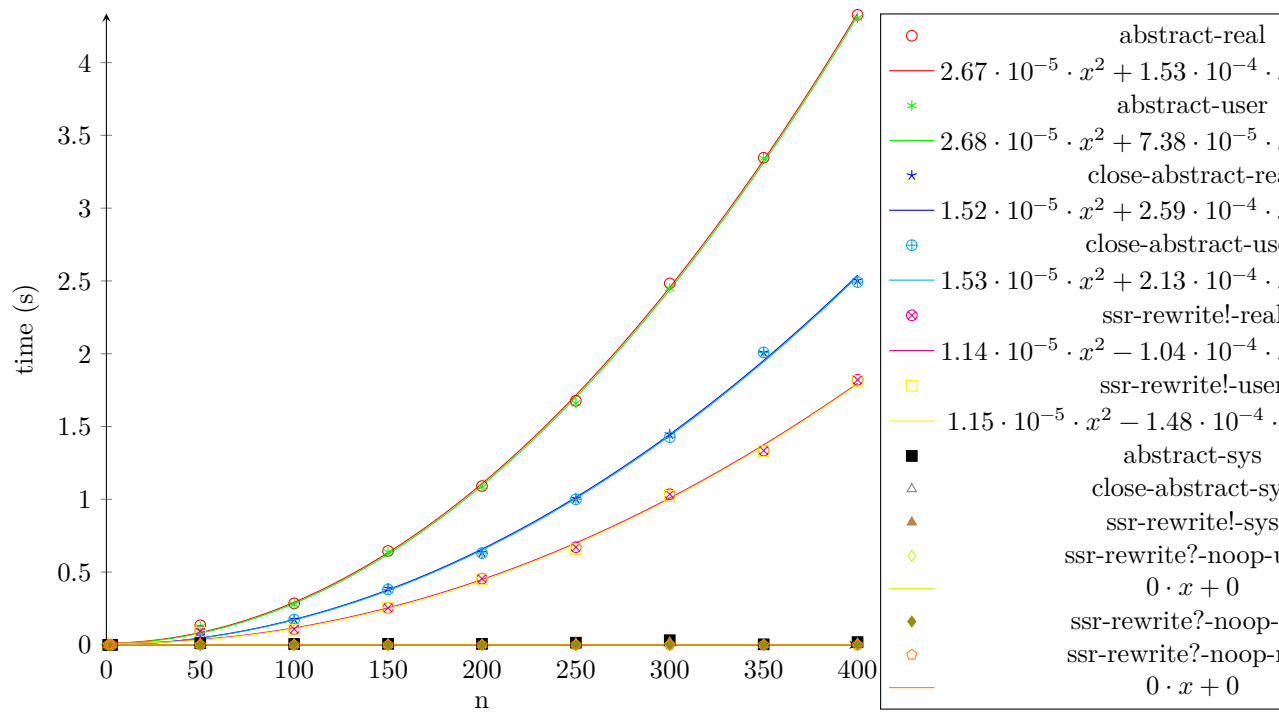autorewrite-sys
rewrite?-noop-sy
close-abstract+rewrit
autorewrite-noop-

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

6

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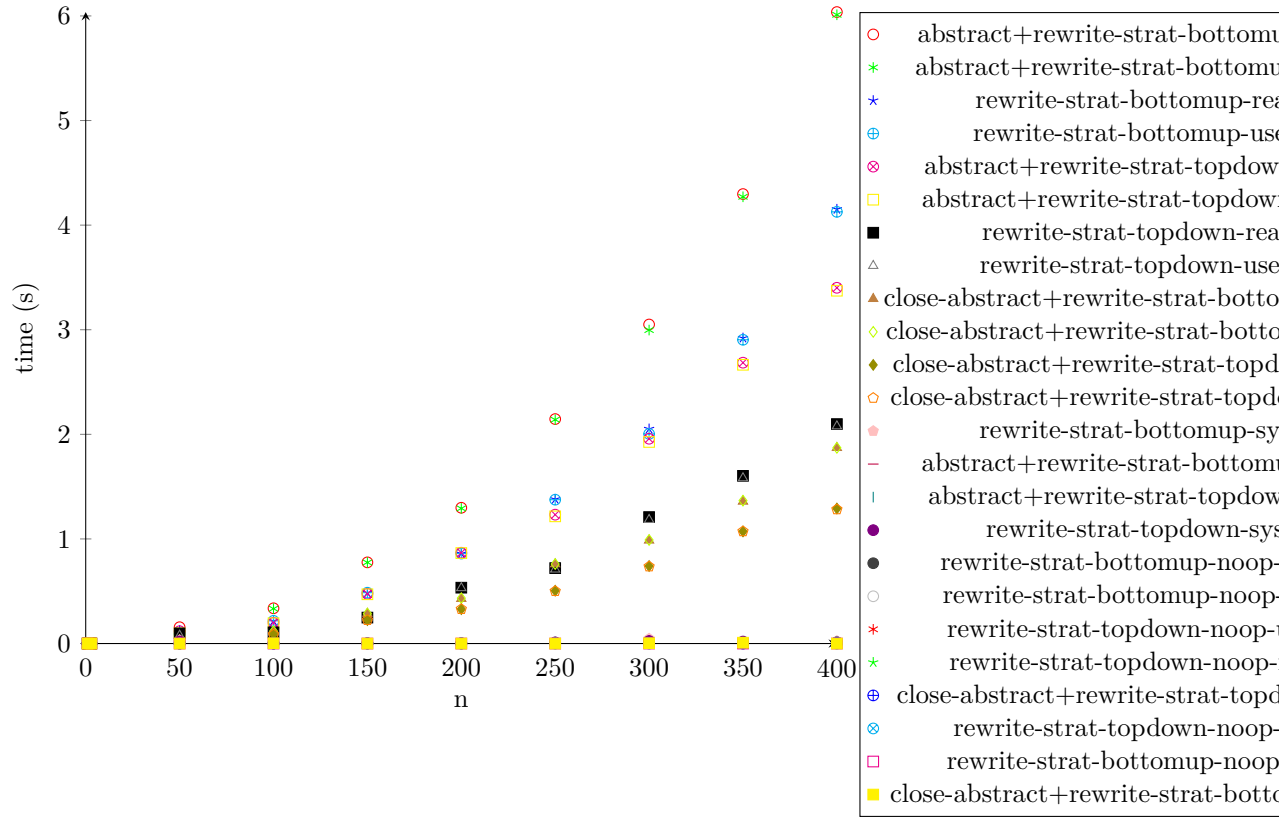
Figure 8: timing-rewrite-repeated-app-ssrrewrite

time (s)

$5 \cdot 10^{-2}$

$4 \cdot 10^{-2}$

$3 \cdot 10^{-2}$

$2 \cdot 10^{-2}$

$1 \cdot 10^{-2}$

0

0   10,000   20,000   30,000   40,000   50,000   60,000

0-n

○ try-ssr-rewrite!-noop-u

—— $7.25 \cdot 10^{-7} \cdot x - 1.06 \cdot 1$

∗ try-ssr-rewrite!-noop-r

—— $7.25 \cdot 10^{-7} \cdot x - 1.06 \cdot 1$

∗ try-ssr-rewrite-noop-re

—— $6.17 \cdot 10^{-7} \cdot x - 8.56 \cdot 1$

⊕ try-ssr-rewrite-noop-u

—— $5.67 \cdot 10^{-7} \cdot x - 6.89 \cdot 1$

⊗ try-ssr-rewrite!-cold-noop

—— $4.73 \cdot 10^{-7} \cdot x - 3.35 \cdot 1$

□ try-ssr-rewrite!-cold-noop

—— $4.73 \cdot 10^{-7} \cdot x - 3.35 \cdot 1$

■ try-ssr-rewrite?-noop-u

—— $3.57 \cdot 10^{-7} \cdot x - 1.17 \cdot 1$

△ try-ssr-rewrite?-noop-r

—— $3.57 \cdot 10^{-7} \cdot x - 1.17 \cdot 1$

▲ try-ssr-rewrite-noop-s

◇ try-ssr-rewrite?-noop-s

◆ try-ssr-rewrite!-noop-s

⬠ try-ssr-rewrite!-cold-noo

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

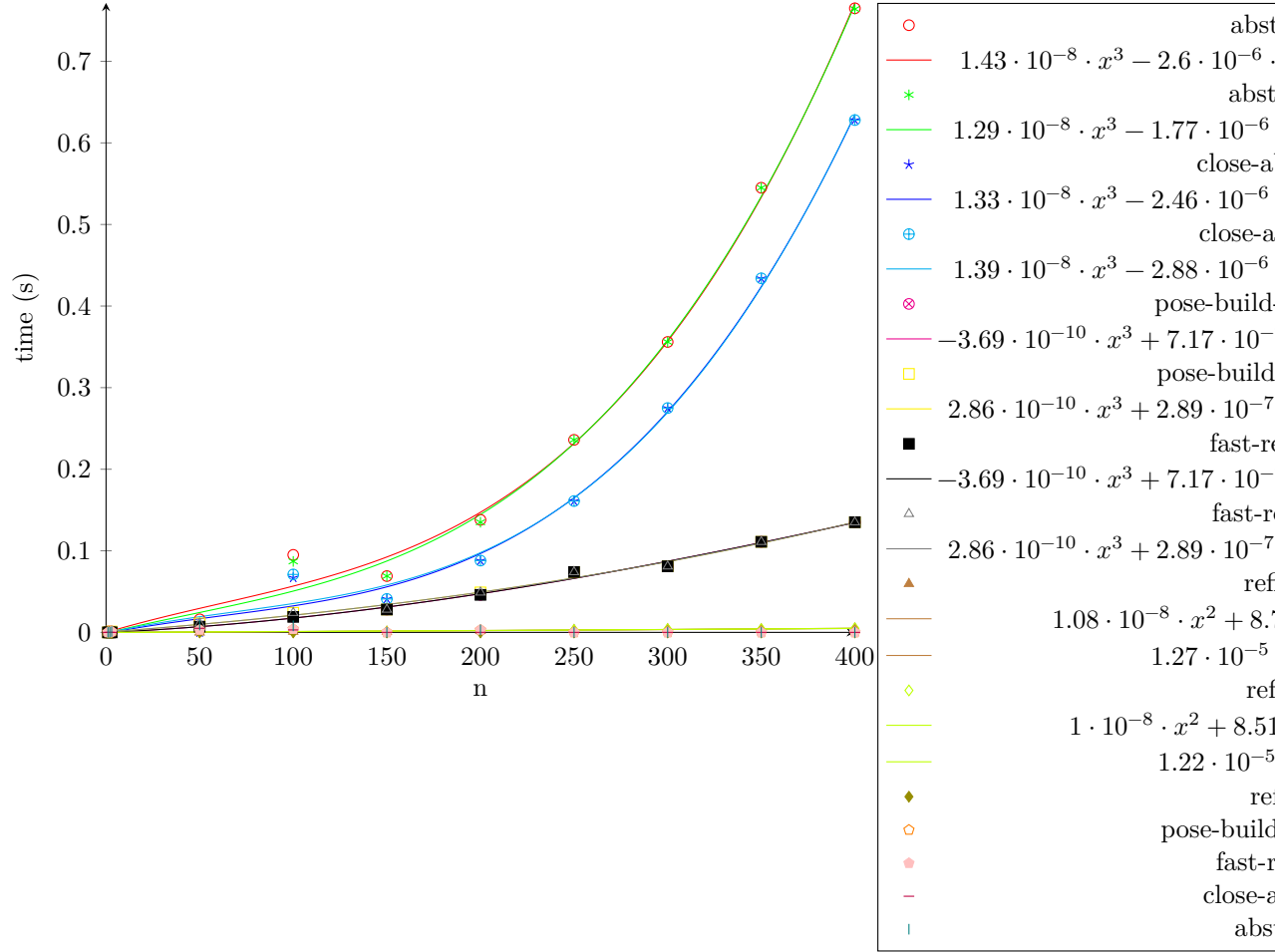Figure 10: timing-rewrite-repeated-app-rewrite-strat
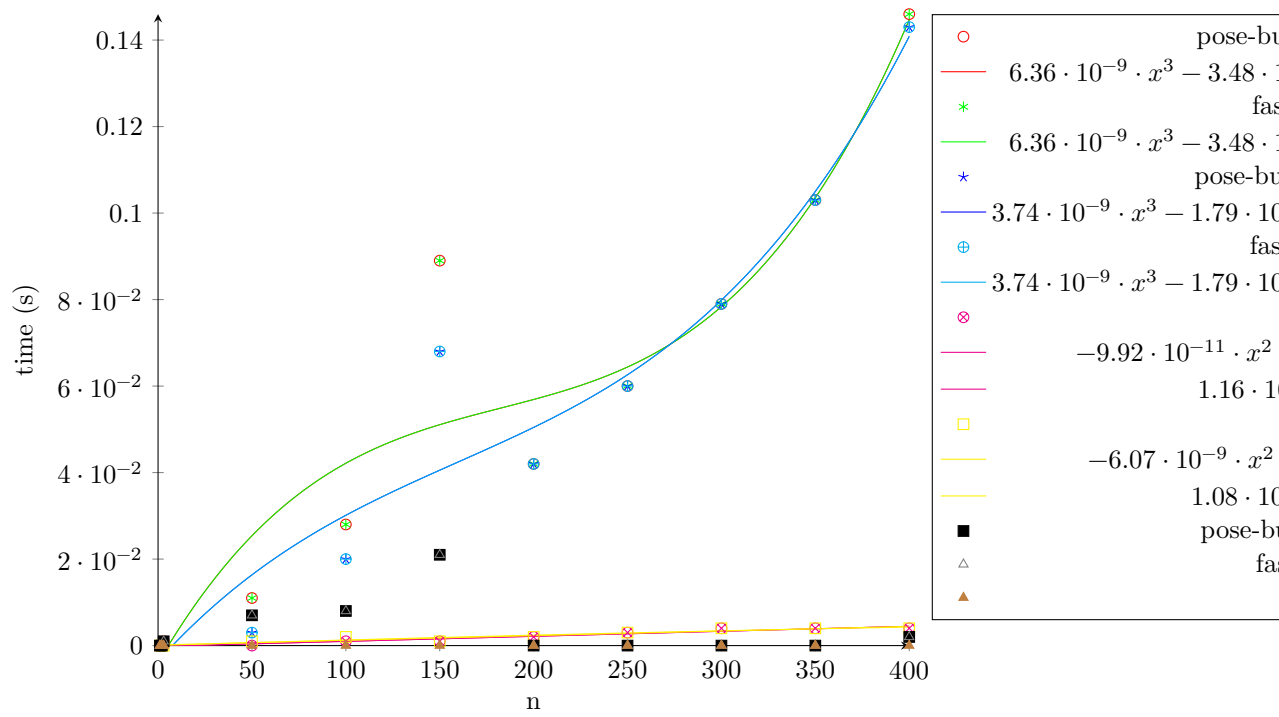
Figure 11: timing-rewrite-repeated-app-fast-rewrite

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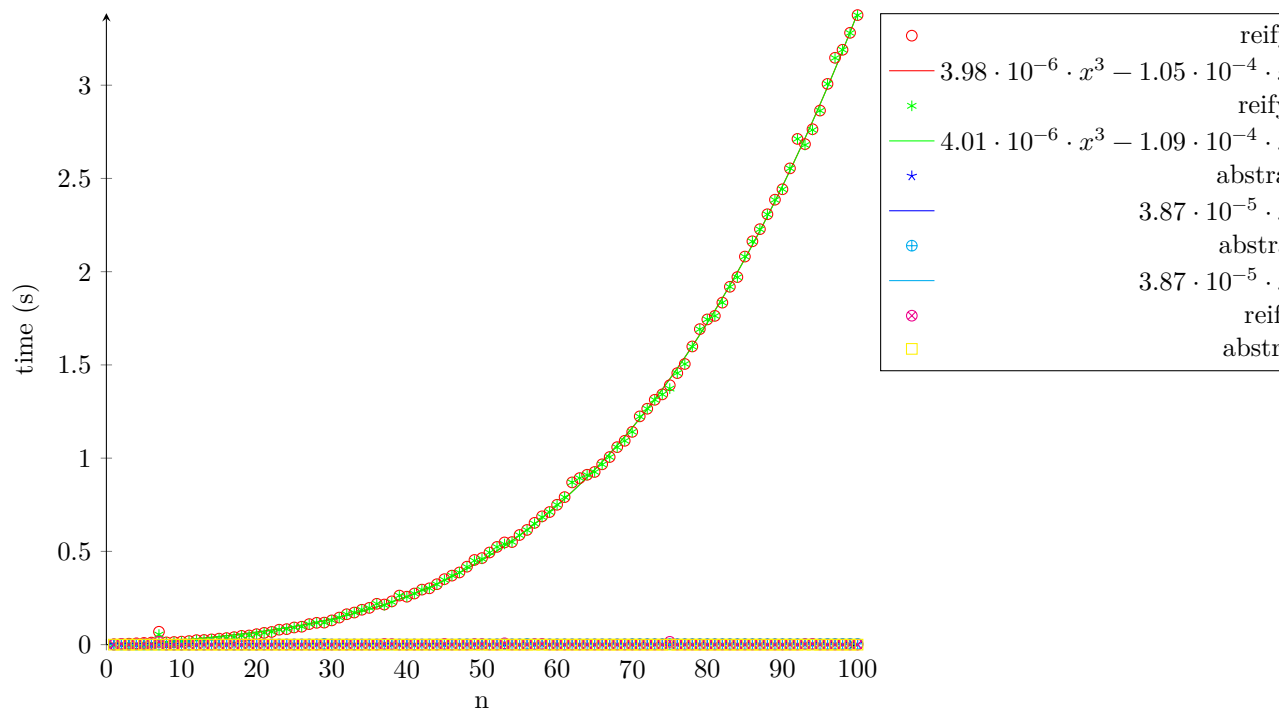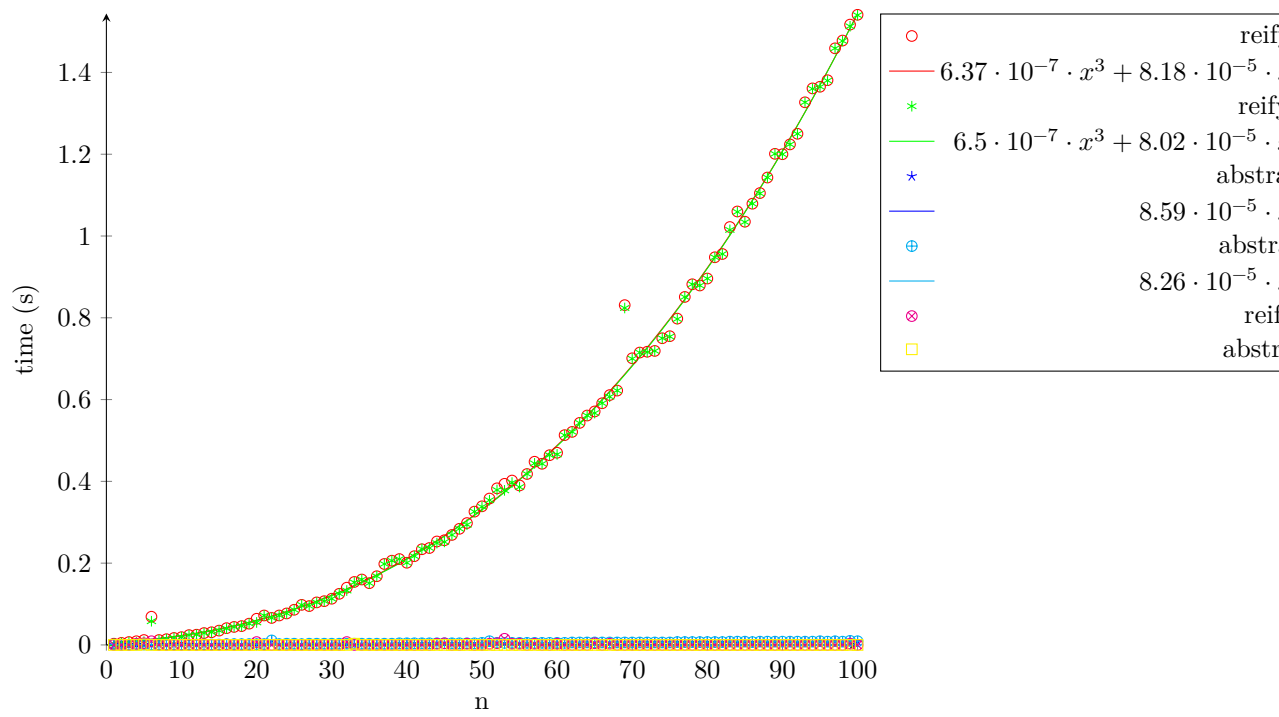
Figure 13: timing-typeclass-reification-let-in-HOAS

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