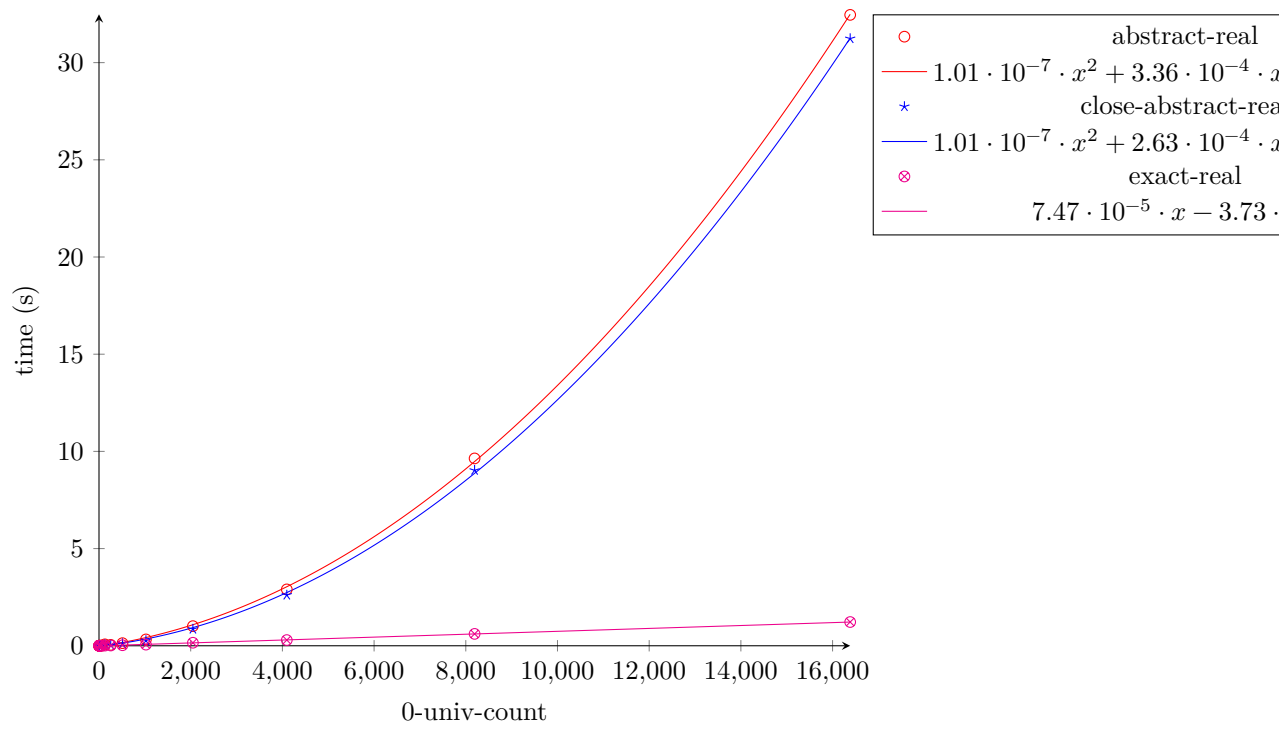Figure 1: timing-pattern

1

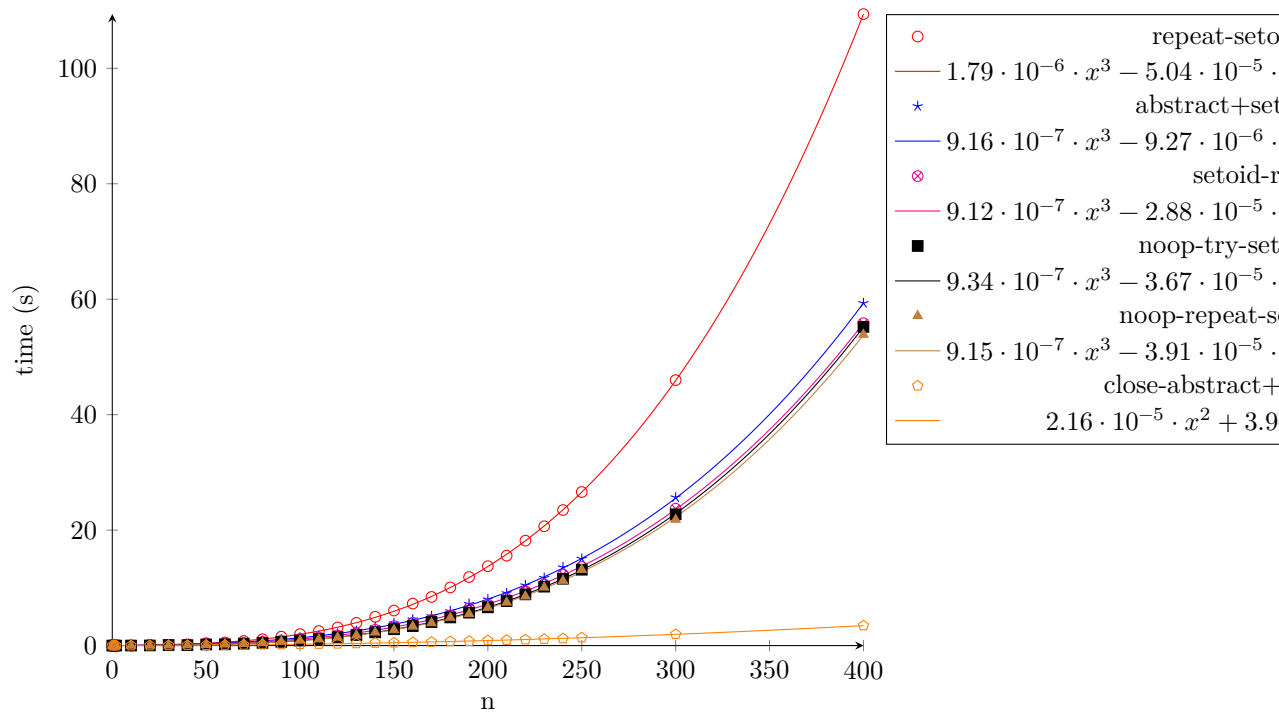Figure 2: timing-n-polymorphic-universes param-1-n 0

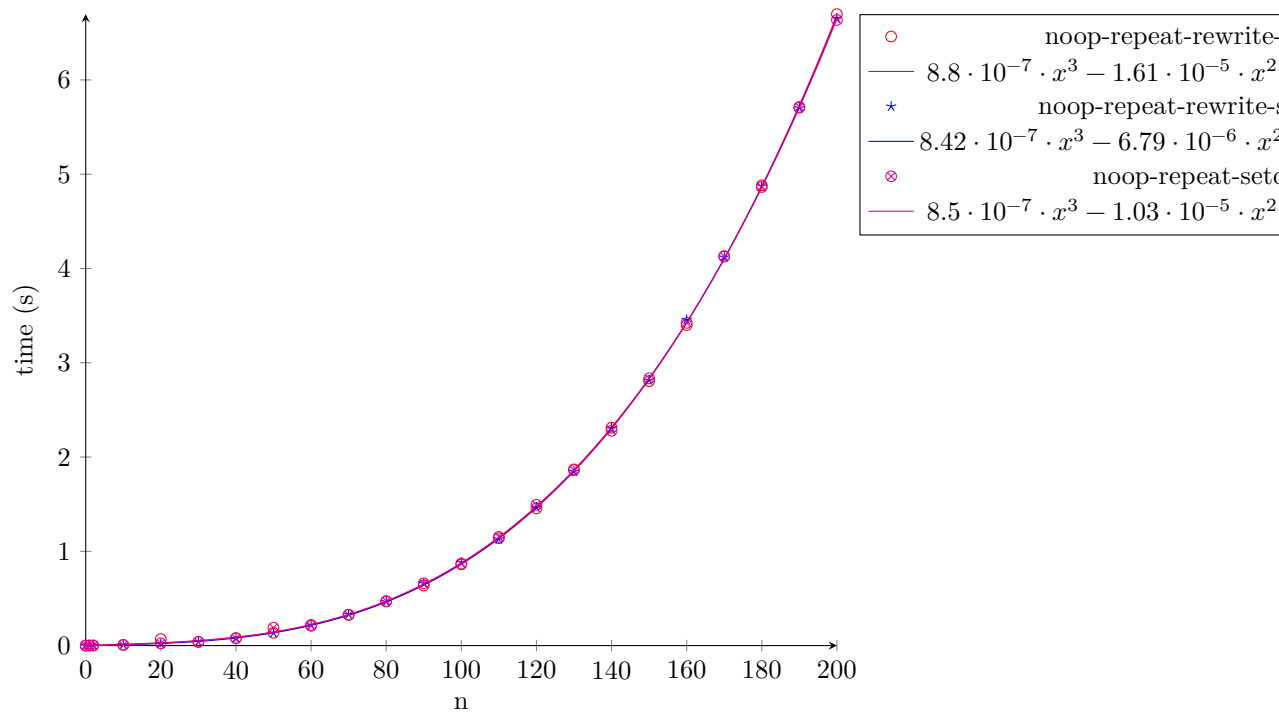Figure 3: timing-repeat-setoid-rewrite-under-binders

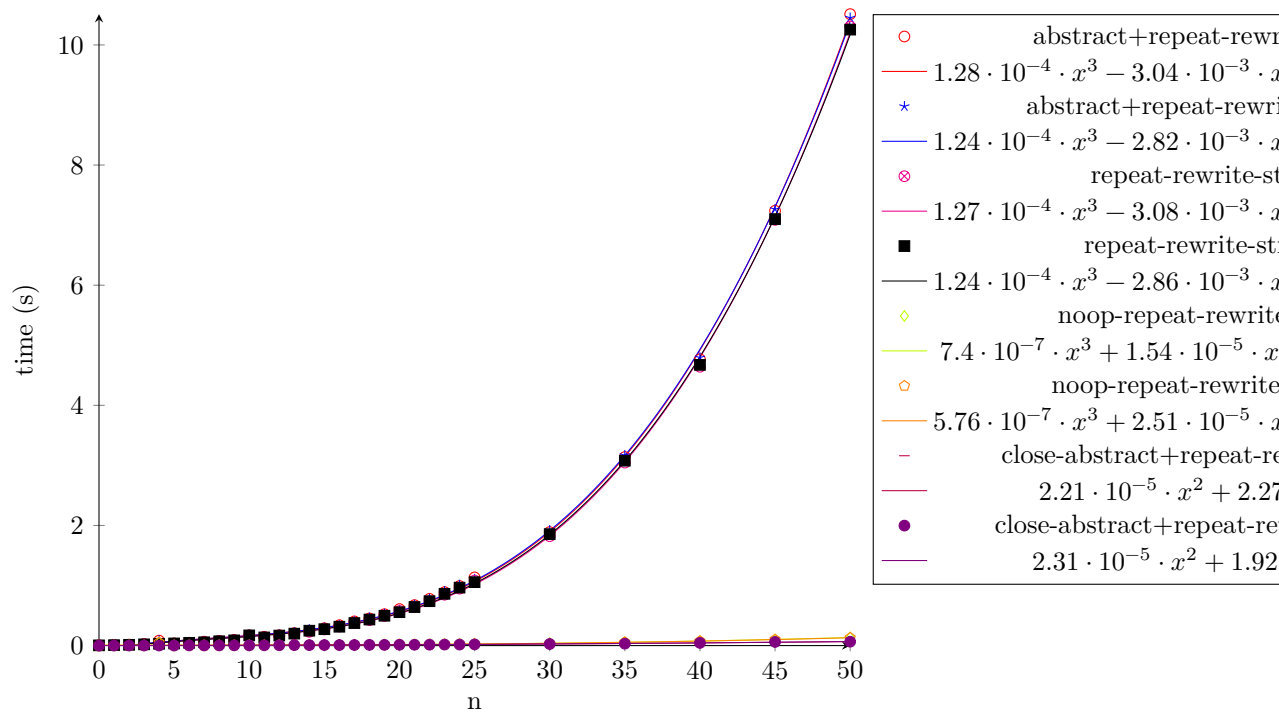Figure 4: timing-repeat-setoid-rewrite-under-binders-noop

4

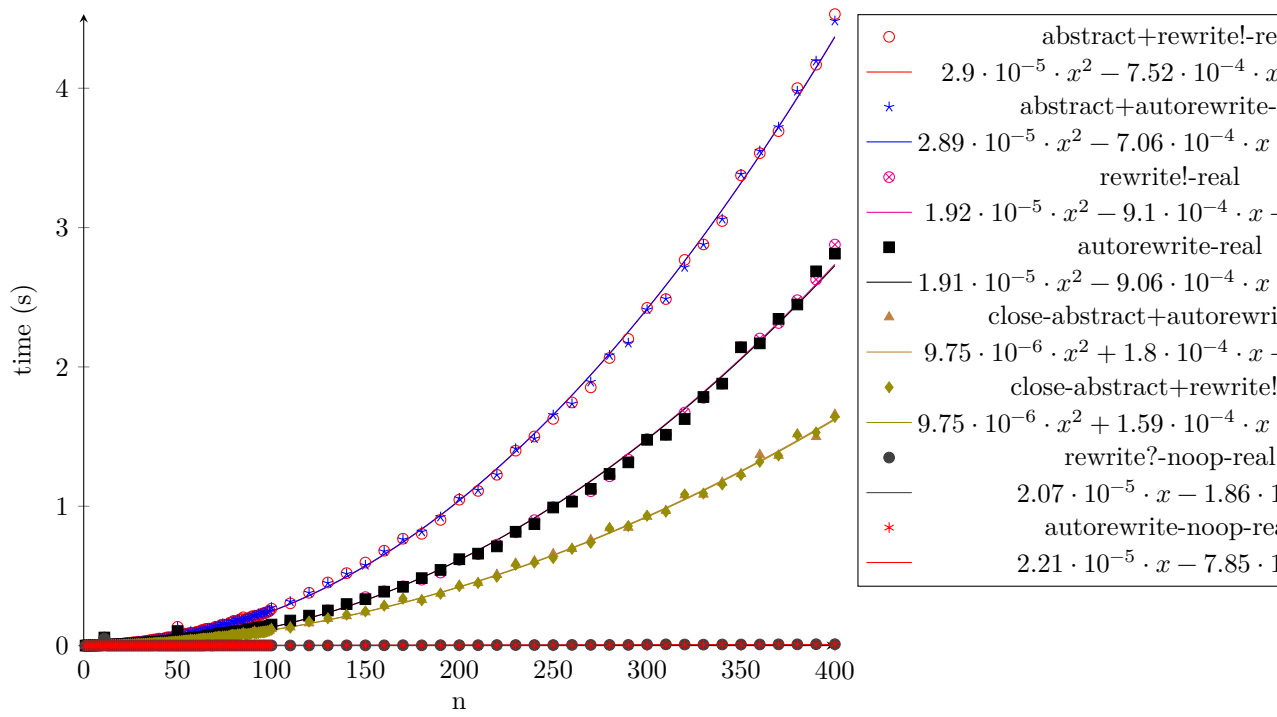Figure 5: timing-rewrite-strat-under-binders
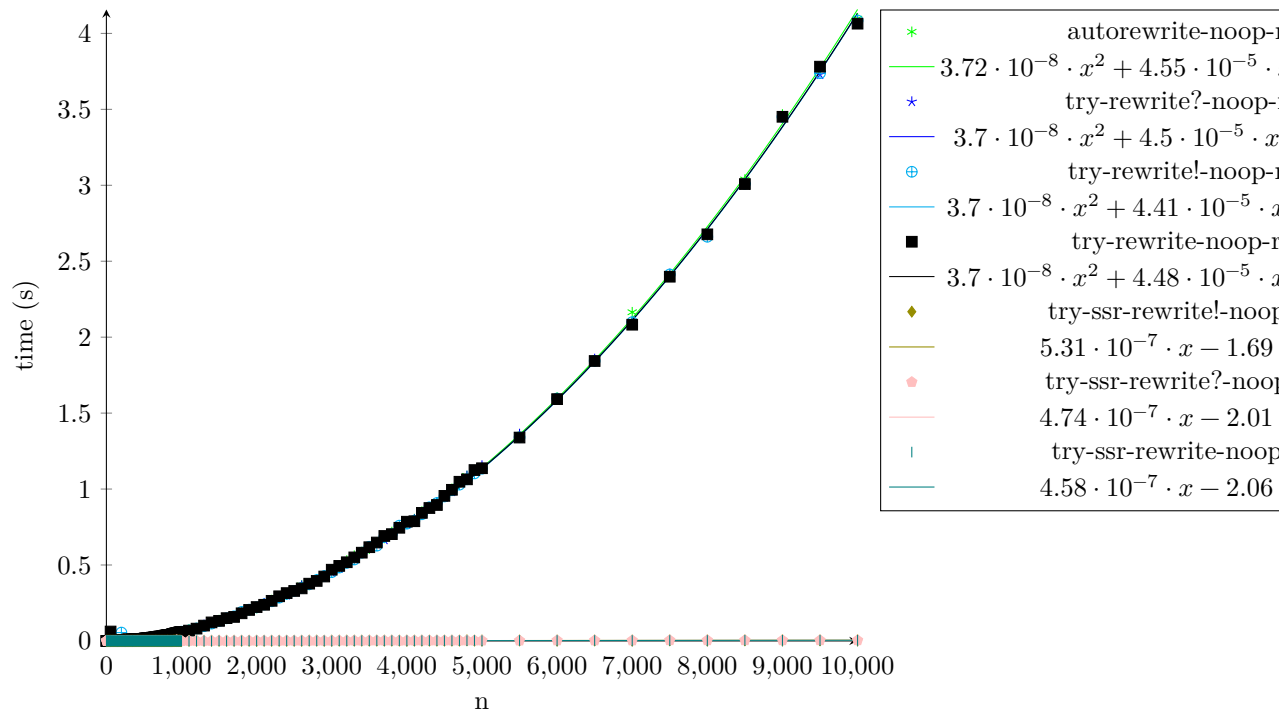
Figure 6: timing-rewrite-repeated-app-autorewrite

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

time (s) axis labels: 0, 0.5, 1, 1.5, 2, 2.5, 3, 3.5, 4

n axis labels: 0, 1,000, 2,000, 3,000, 4,000, 5,000, 6,000, 7,000, 8,000, 9,000, 10,000

Legend:
- autorewrite-noop-r
- $3.72 \cdot 10^{-8} \cdot x^2 + 4.55 \cdot 10^{-5} \cdot$
- try-rewrite?-noop-
- $3.7 \cdot 10^{-8} \cdot x^2 + 4.5 \cdot 10^{-5} \cdot x$
- try-rewrite!-noop-
- $3.7 \cdot 10^{-8} \cdot x^2 + 4.41 \cdot 10^{-5} \cdot x$
- try-rewrite-noop-
- $3.7 \cdot 10^{-8} \cdot x^2 + 4.48 \cdot 10^{-5} \cdot x$
- try-ssr-rewrite!-noop
- $5.31 \cdot 10^{-7} \cdot x - 1.69$
- try-ssr-rewrite?-noop
- $4.74 \cdot 10^{-7} \cdot x - 2.01$
- try-ssr-rewrite-noop
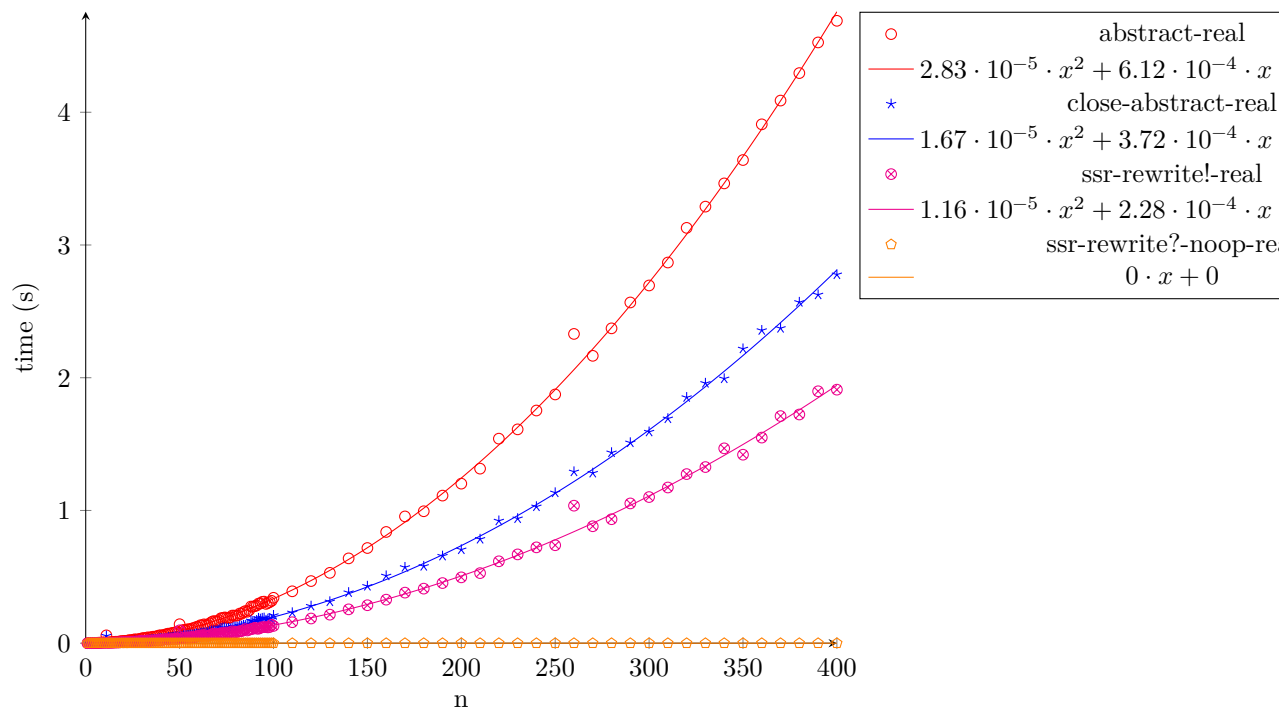- $4.58 \cdot 10^{-7} \cdot x - 2.06$

7

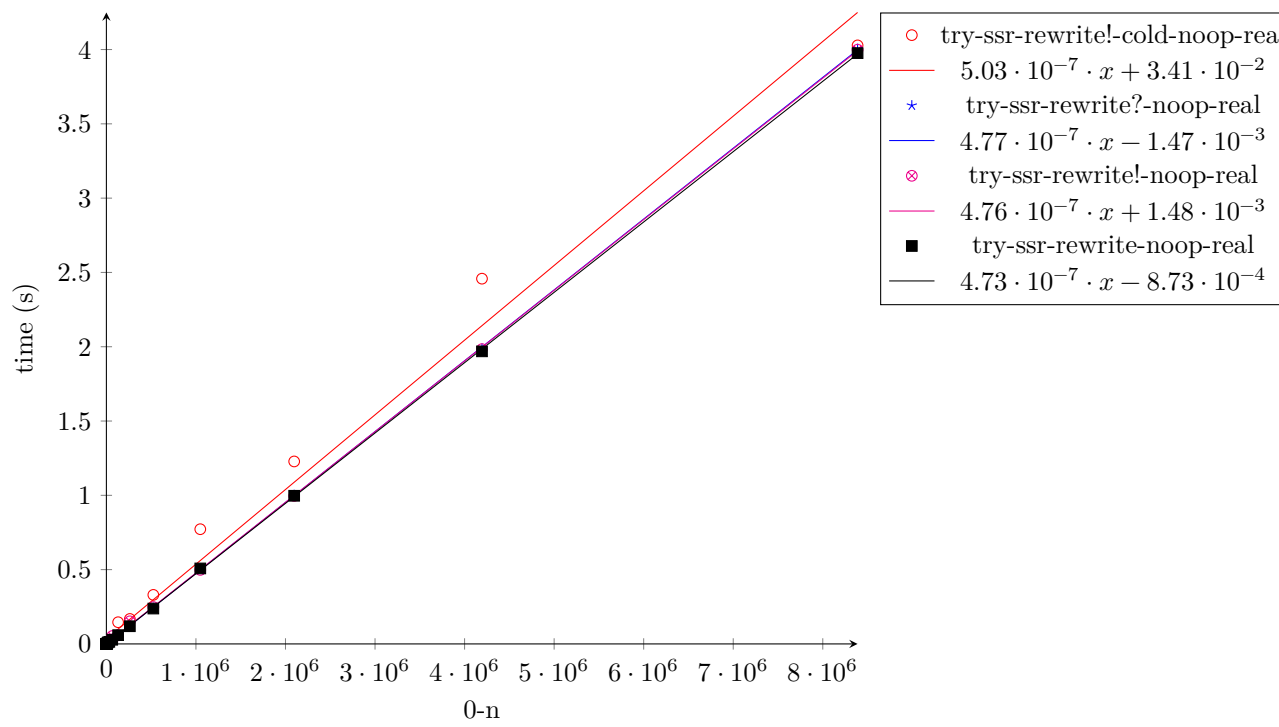Figure 8: timing-rewrite-repeated-app-ssrrewrite

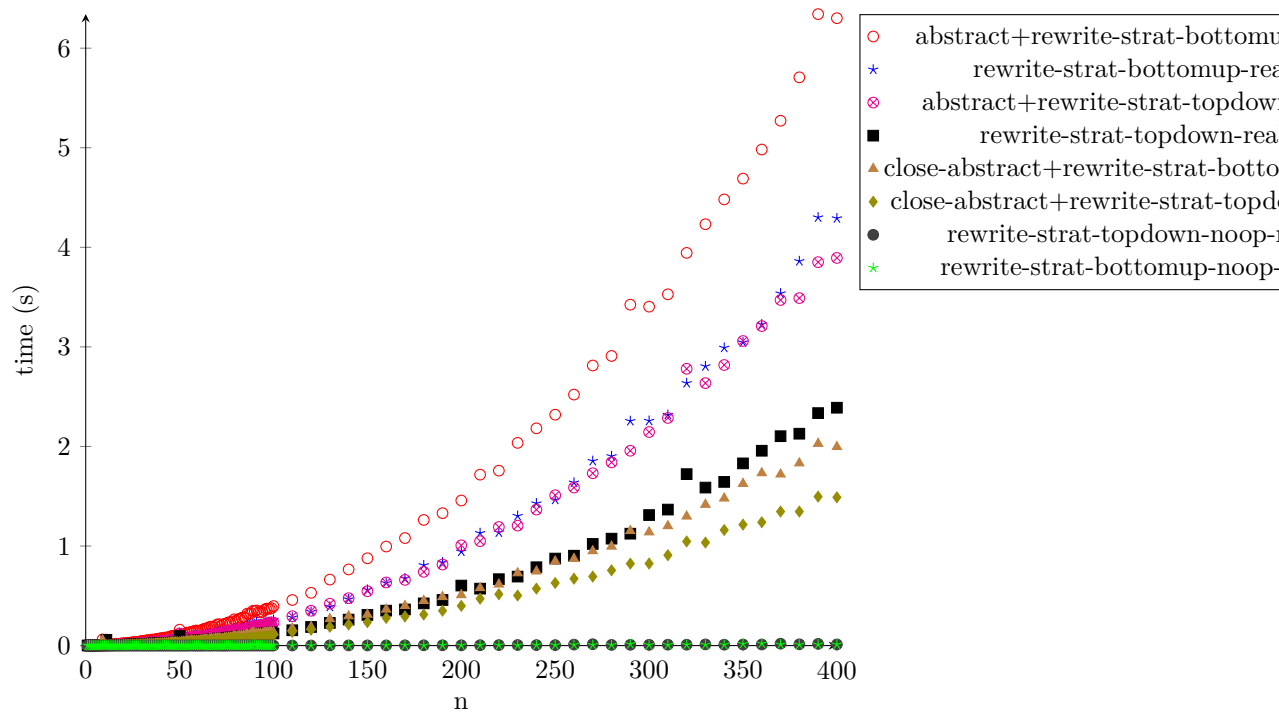Figure 9: timing-rewrite-repeated-app-ssrrewrite-noop param-1-lgn 1

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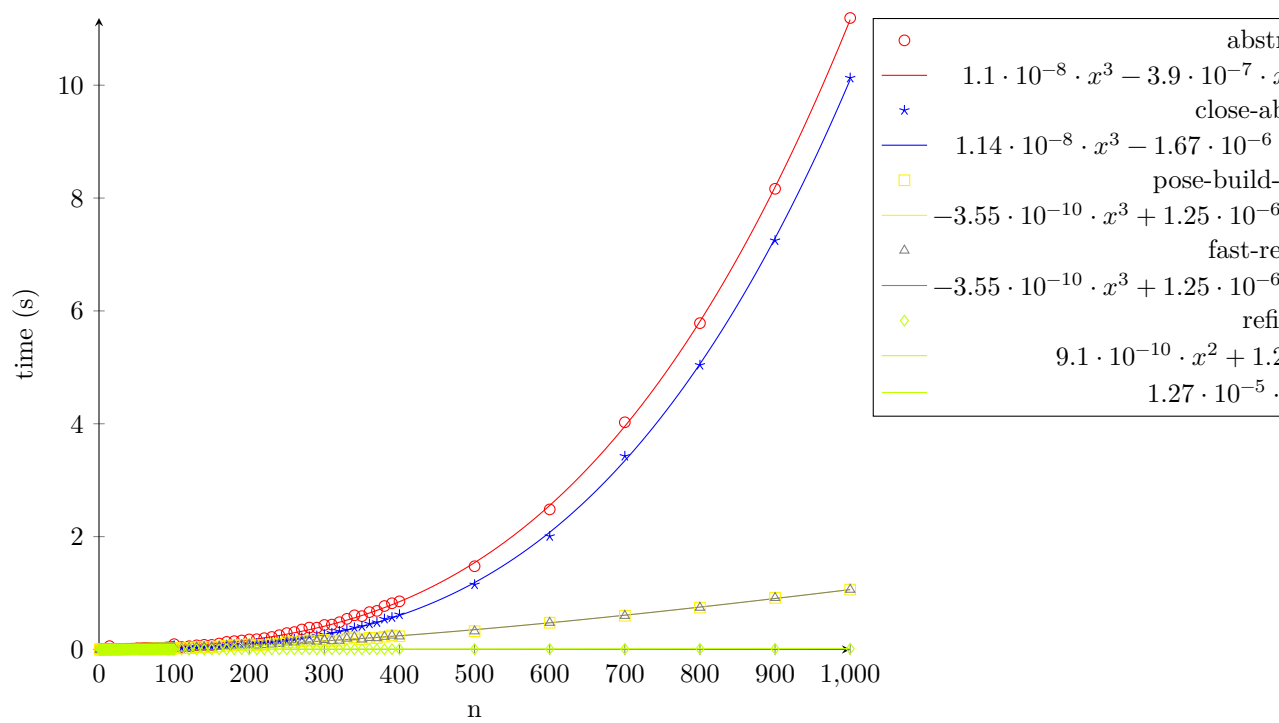
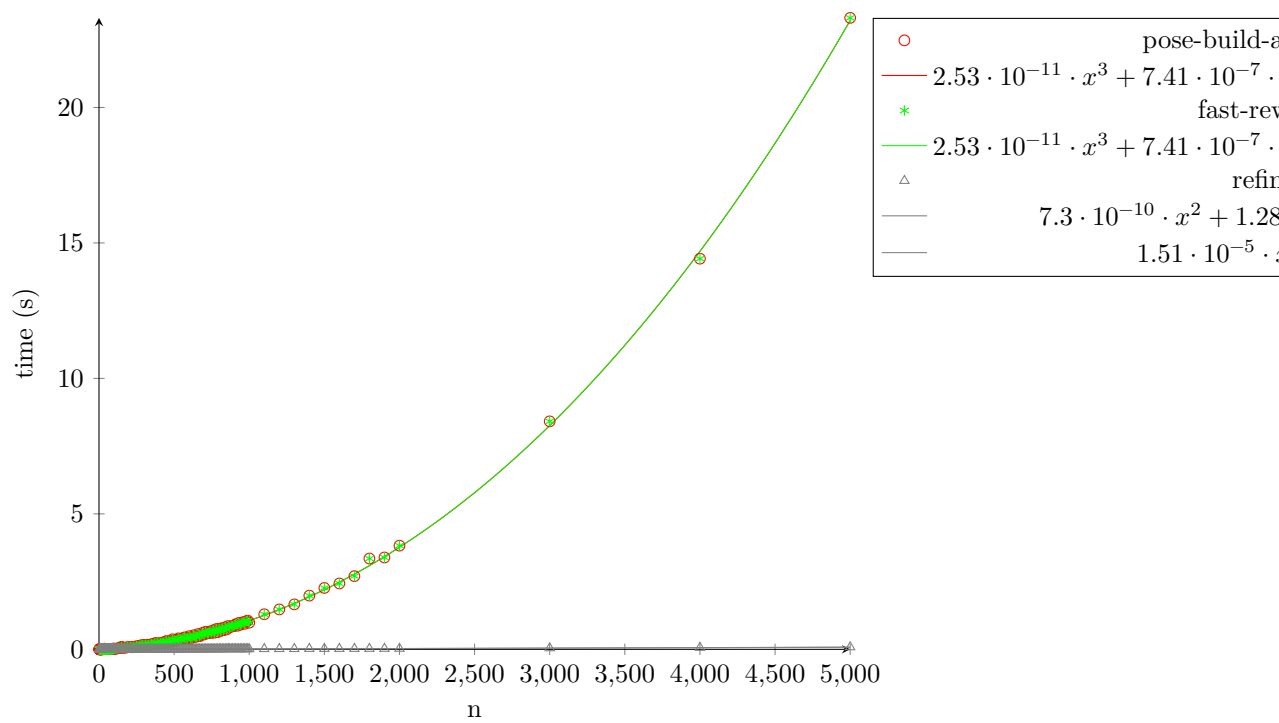Figure 11: timing-rewrite-repeated-app-fast-rewrite

11

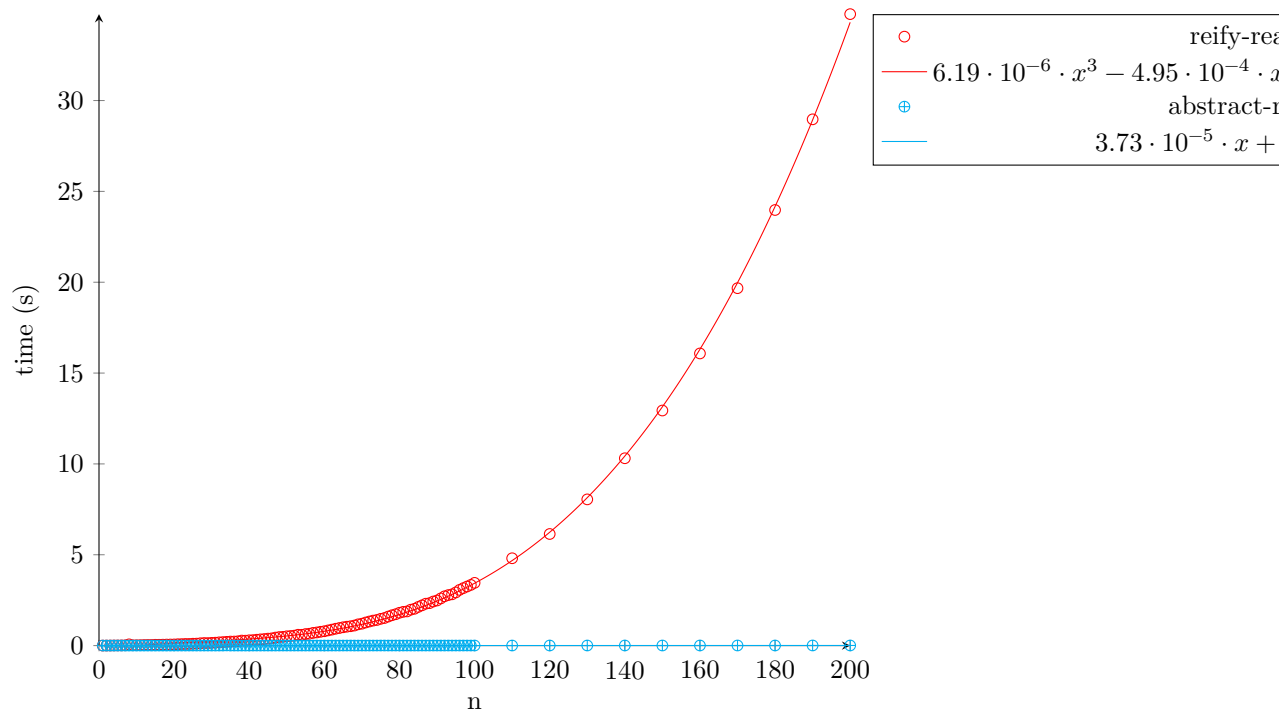Figure 12: timing-rewrite-repeated-app-fast-rewrite-no-abstract

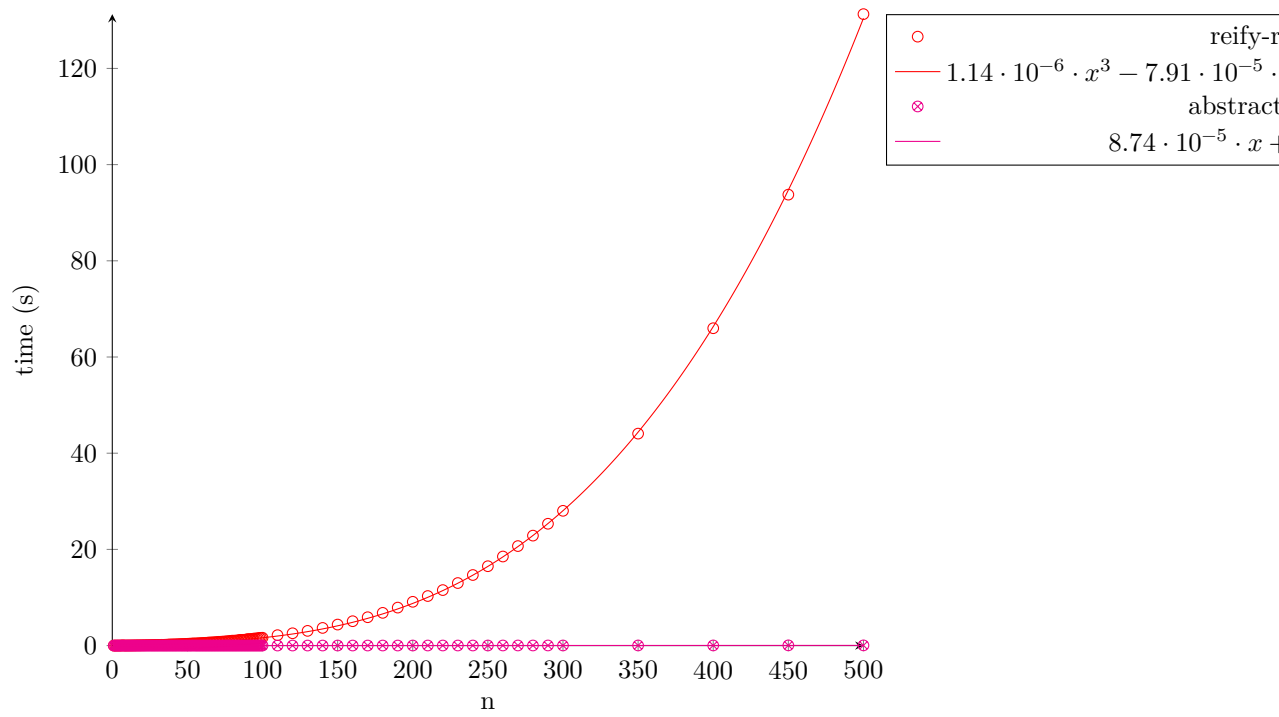Figure 13: timing-typeclass-reification-let-in-HOAS

13

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

time (s)

n

abstract-real

$2.21 \cdot 10^{-6} \cdot x^2 + 2.22 \cdot 10^{-4} \cdot x$

fast-rewrite-real

$1.83 \cdot 10^{-6} \cdot x^2 + 1.76 \cdot 10^{-4} \cdot x$

close-abstract-real

$3.84 \cdot 10^{-7} \cdot x^2 + 4.36 \cdot 10^{-5} \cdot x$

check-pf-cast-real

$2.76 \cdot 10^{-7} \cdot x^2 - 1.72 \cdot 10^{-5} \cdot x$

refine-real

$2.79 \cdot 10^{-7} \cdot x^2 - 5.12 \cdot 10^{-5} \cdot x$

$5.28 \cdot 10^{-4} \cdot x - 5.73$

type-admit-real

$2.68 \cdot 10^{-7} \cdot x^2 - 4.11 \cdot 10^{-6} \cdot x$

check-admit-cast-real

$2.68 \cdot 10^{-7} \cdot x^2 - 1.81 \cdot 10^{-5} \cdot x$

type-pf-cast-real

$2.73 \cdot 10^{-7} \cdot x^2 - 7.94 \cdot 10^{-6} \cdot x$

type-admit-cast-real

$2.54 \cdot 10^{-7} \cdot x^2 + 1.94 \cdot 10^{-5} \cdot x$

check-admit-real

$2.03 \cdot 10^{-7} \cdot x^2 + 7.29 \cdot 10^{-5} \cdot x$

build-eval-thunk-real

$1.13 \cdot 10^{-4} \cdot x - 8.94$

build-thunk-real

$1.12 \cdot 10^{-4} \cdot x - 9.31$

check-I-real

$2.19 \cdot 10^{-5} \cdot x - 5.15$

type-I-real

$2.14 \cdot 10^{-5} \cdot x - 5.84$

build-I-real

$1.06 \cdot 10^{-5} \cdot x - 6.29$

build-admit-real

$9.41 \cdot 10^{-6} \cdot x - 5.03$

build-admit-cast-real

$9.75 \cdot 10^{-6} \cdot x - 4.49$

build-pf-cast-real

$9.36 \cdot 10^{-6} \cdot x - 4.57$
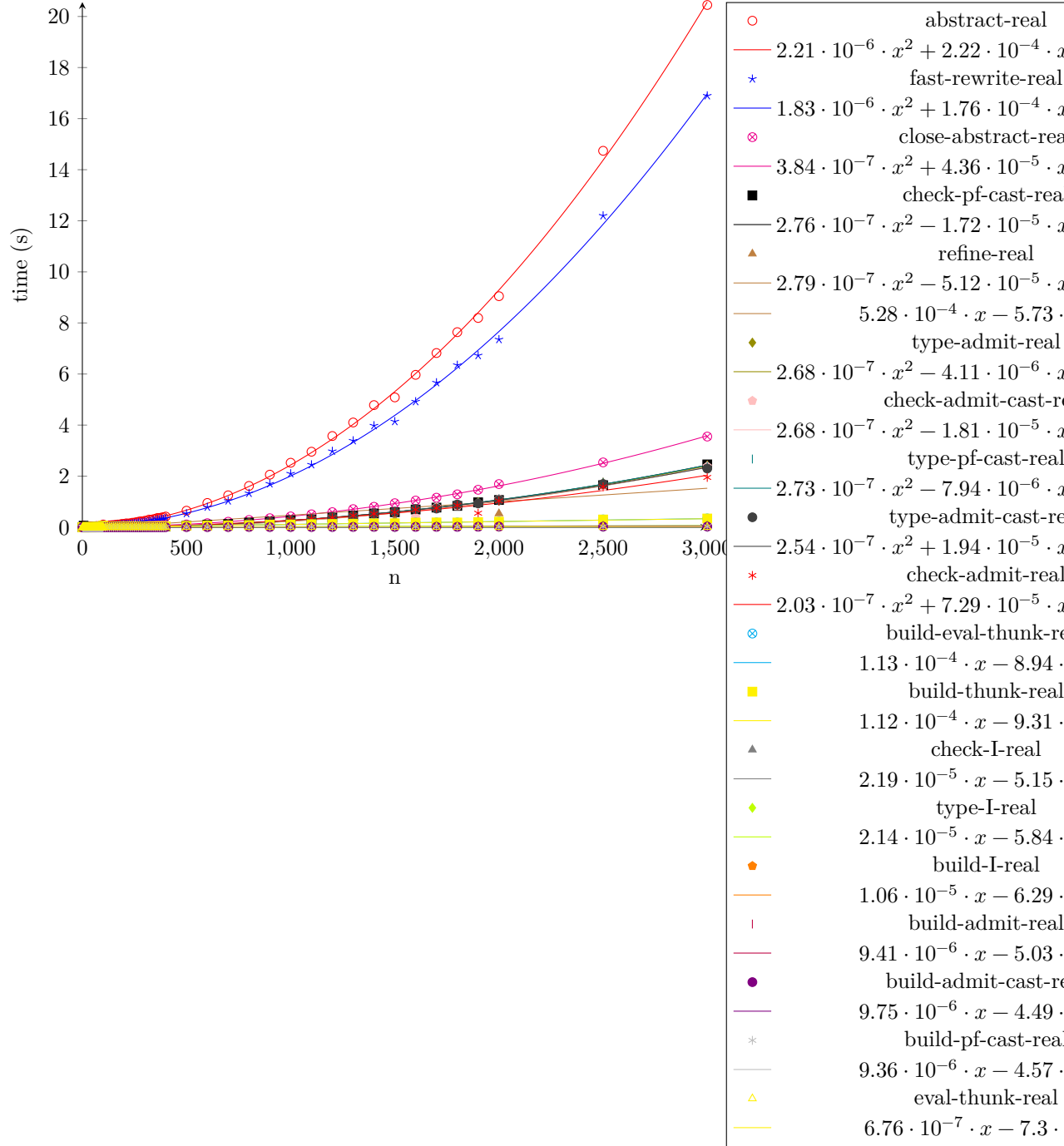
eval-thunk-real

$6.76 \cdot 10^{-7} \cdot x - 7.3$

Figure 15: timing-rewrite-repeated-app-fast-rewrite-ltac2