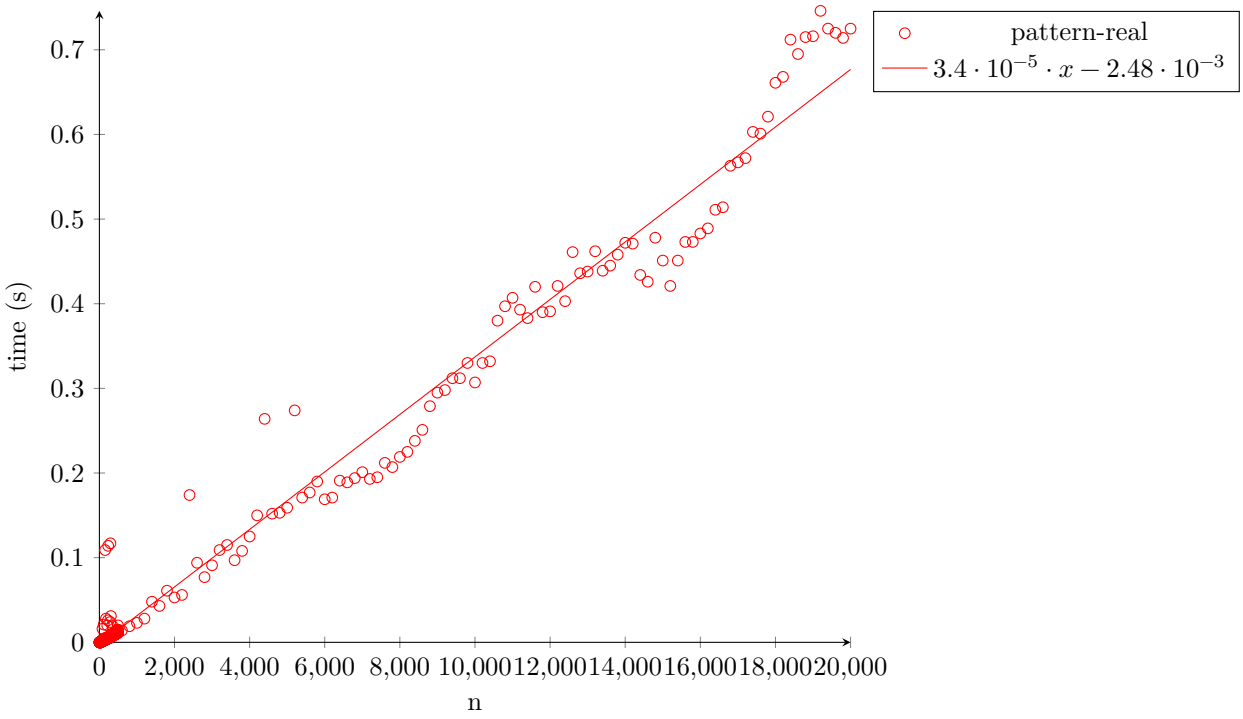


Figure 1: timing-pattern

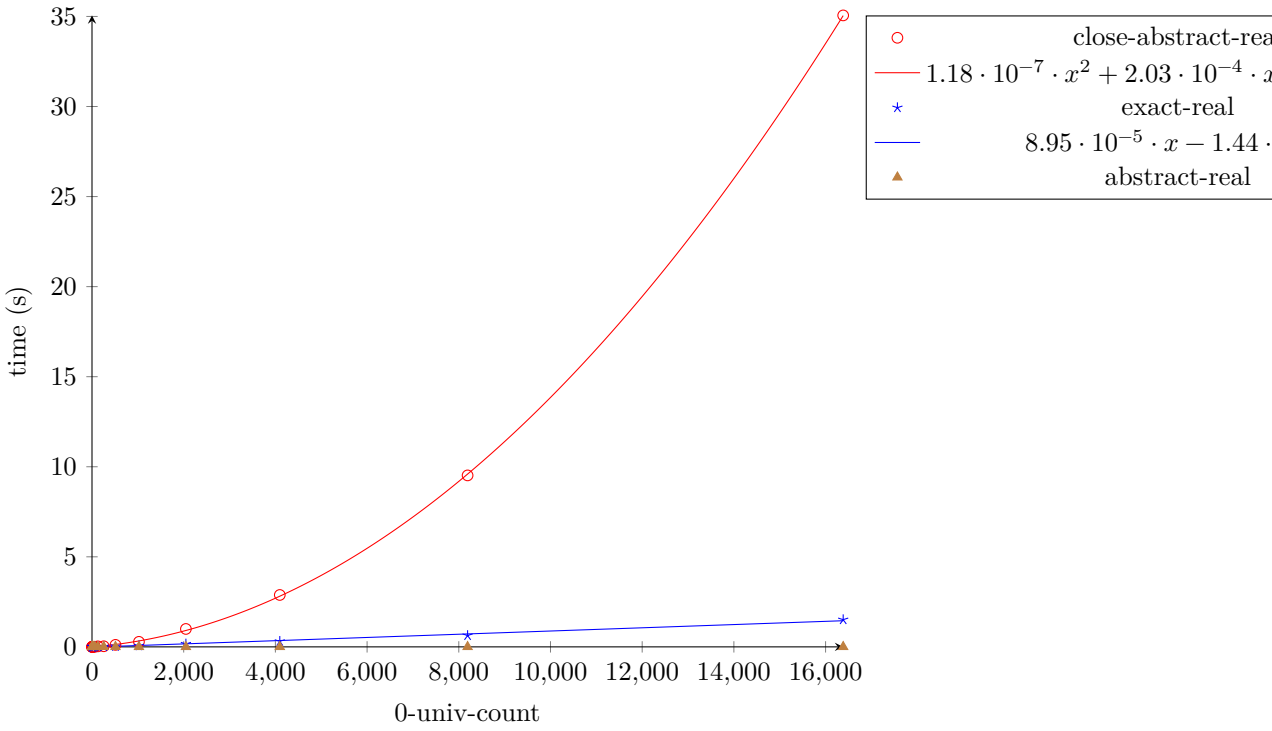


Figure 2: timing-n-polymorphic-universes param-1-n 0

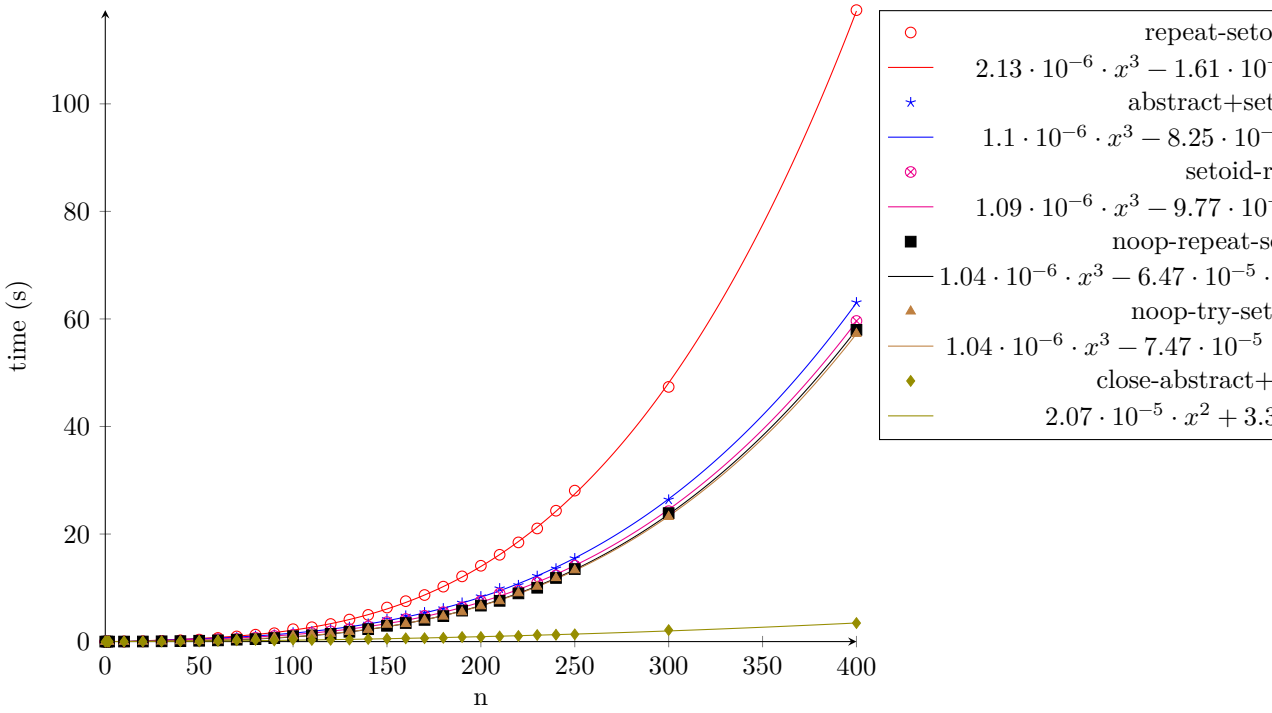


Figure 3: timing-repeat-setoid-rewrite-under-binders

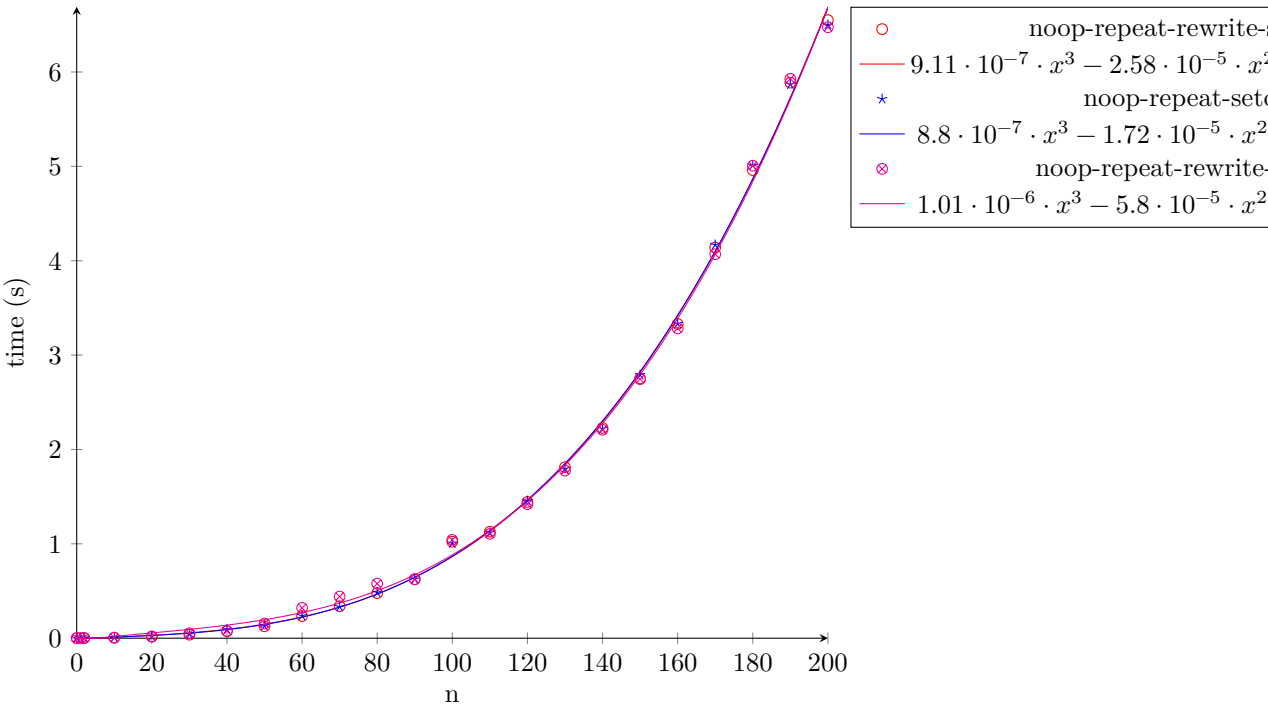


Figure 4: timing-repeat-setoid-rewrite-under-binders-noop

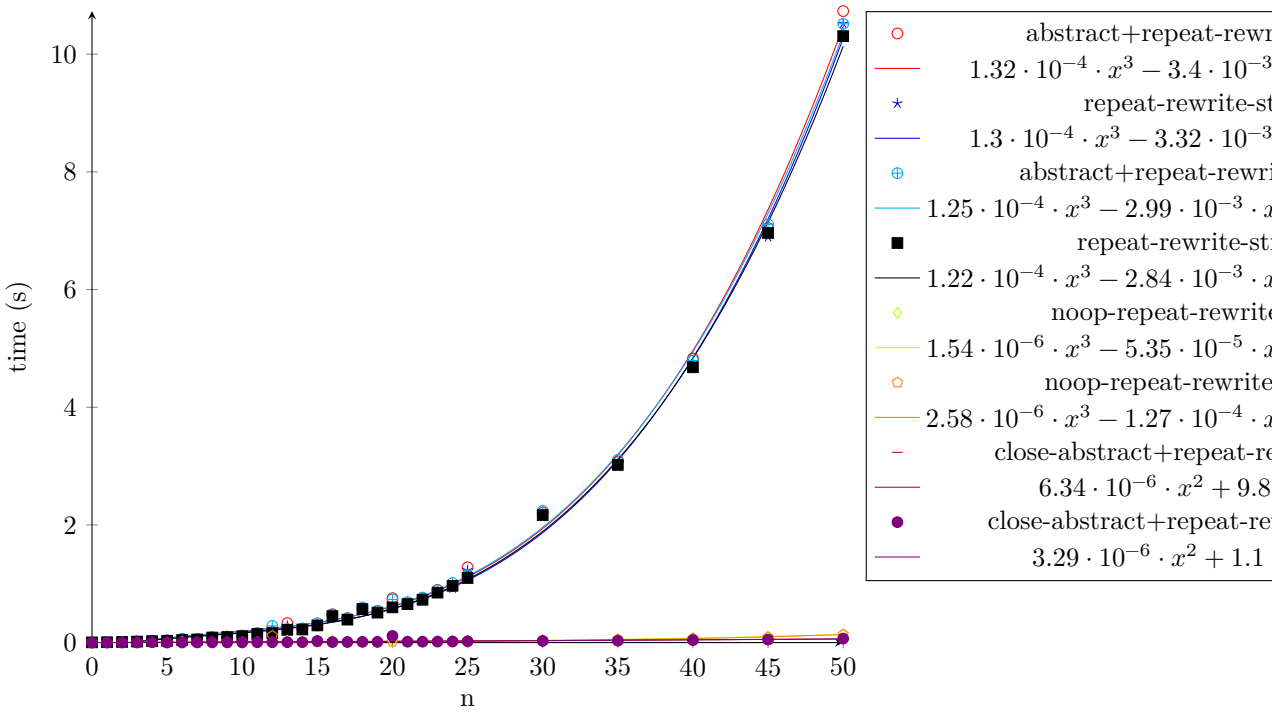


Figure 5: timing-rewrite-strat-under-binders

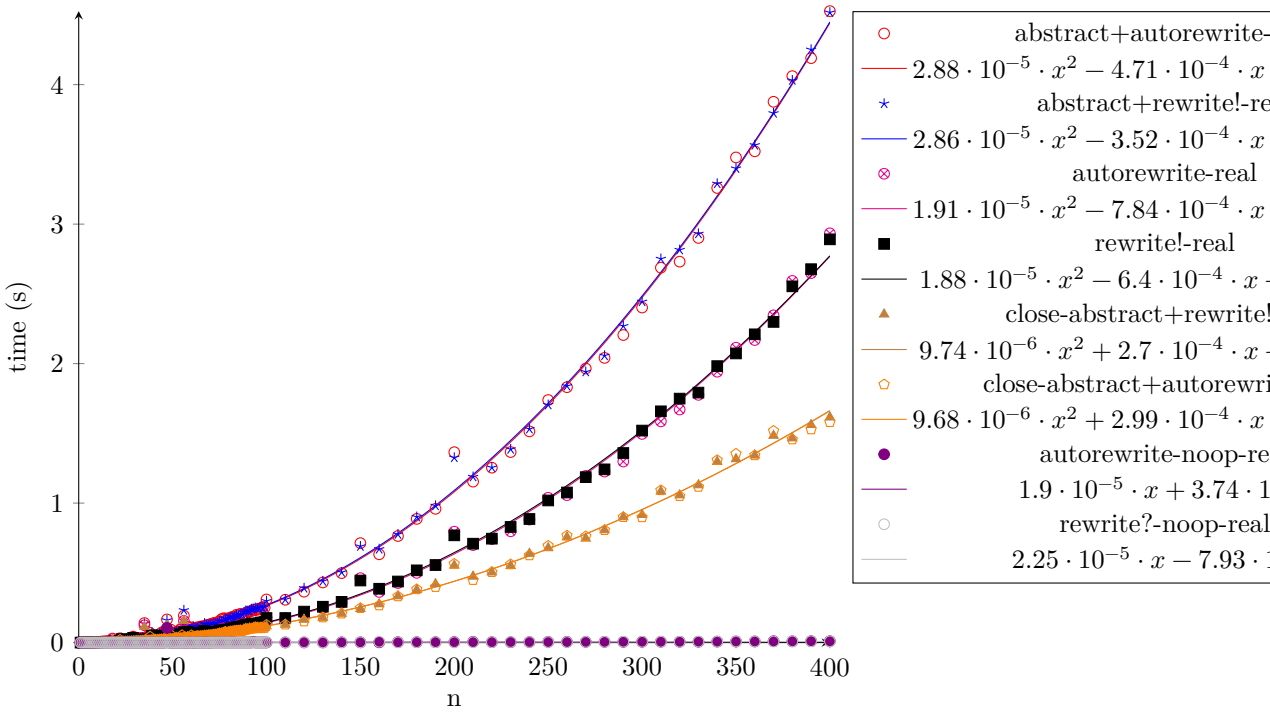


Figure 6: timing-rewrite-repeated-app-autorewrite

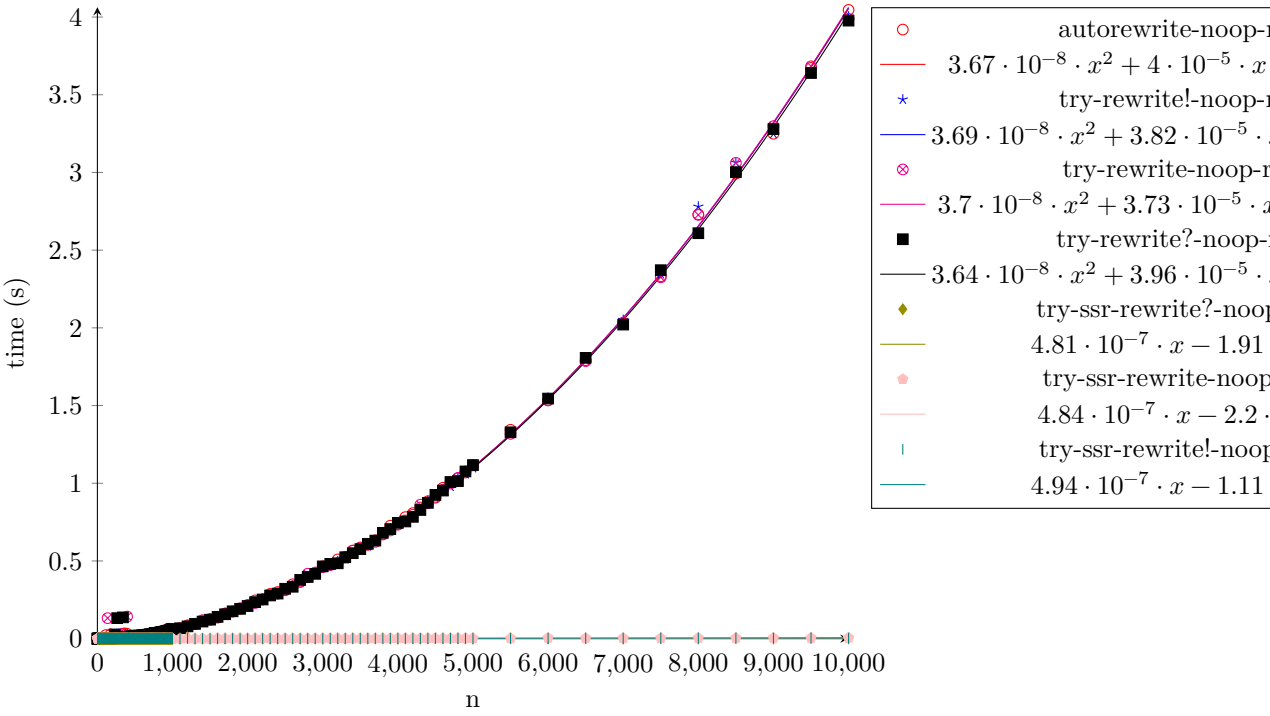


Figure 7: timing-rewrite-repeated-app-autorewrite-noop

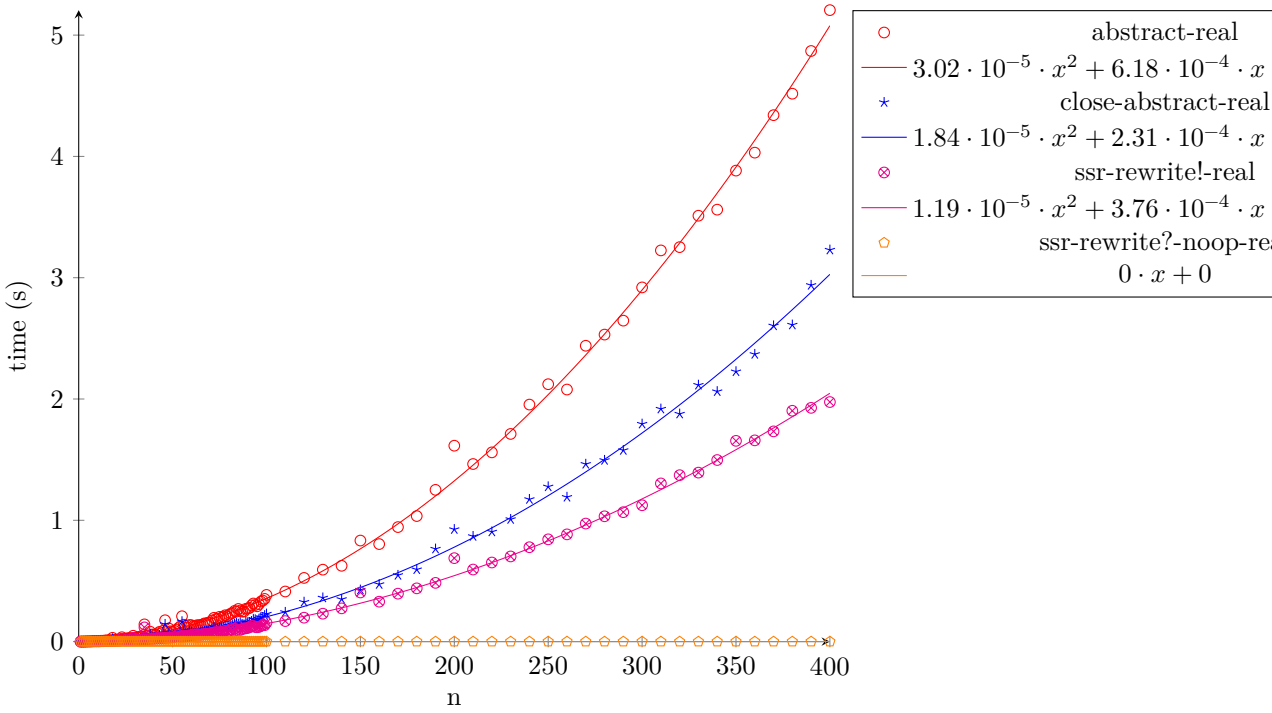


Figure 8: timing-rewrite-repeated-app-ssrrewrite

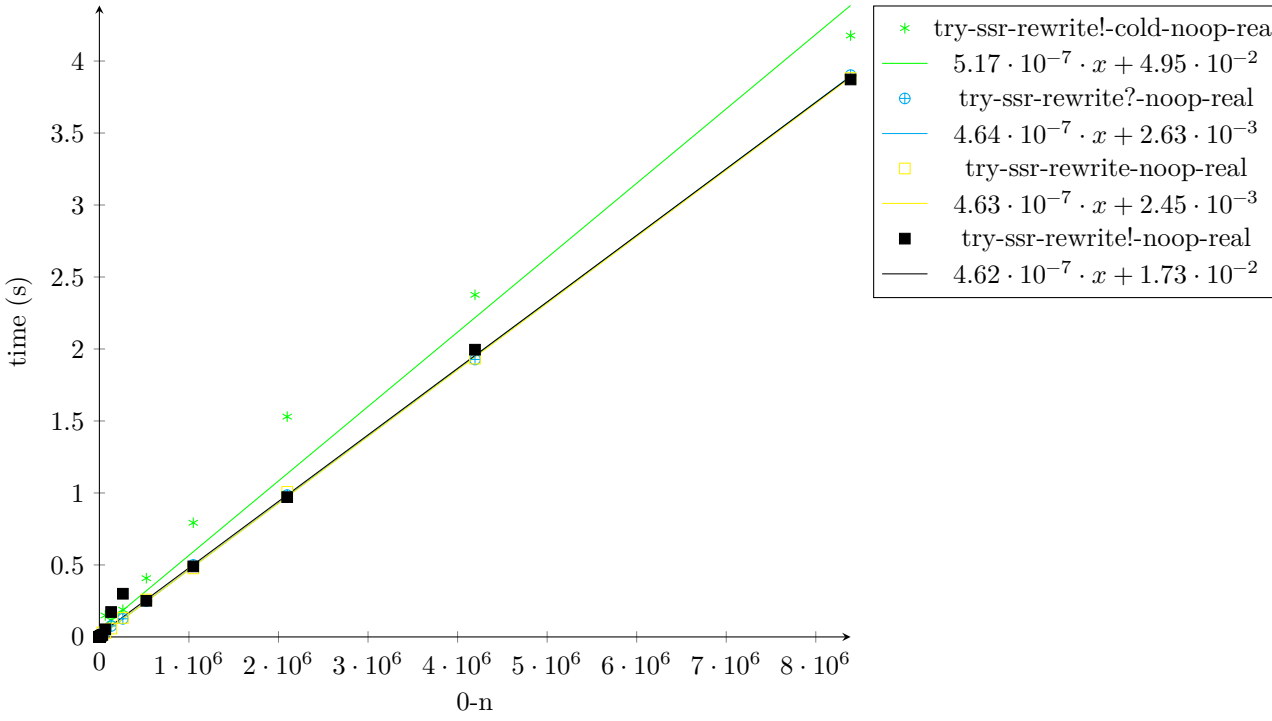


Figure 9: timing-rewrite-repeated-app-ssrrewrite-noop param-1-lgn 1

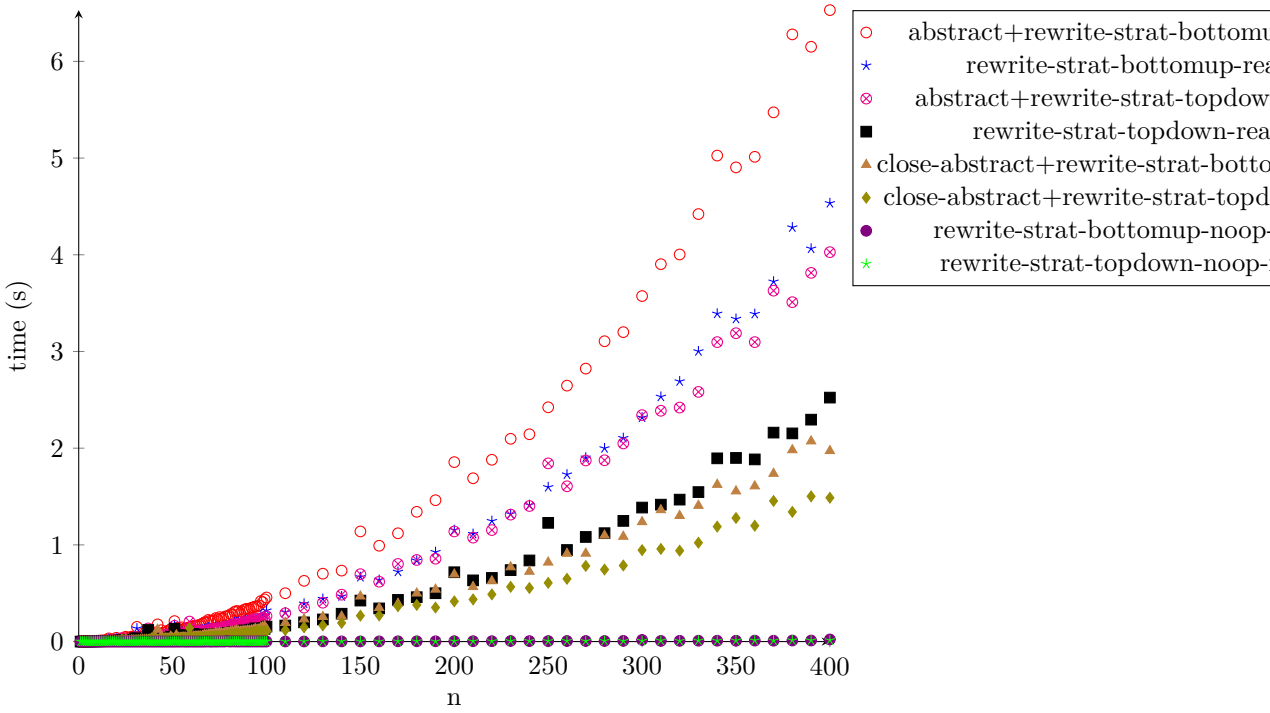


Figure 10: timing-rewrite-repeated-app-rewrite-strat

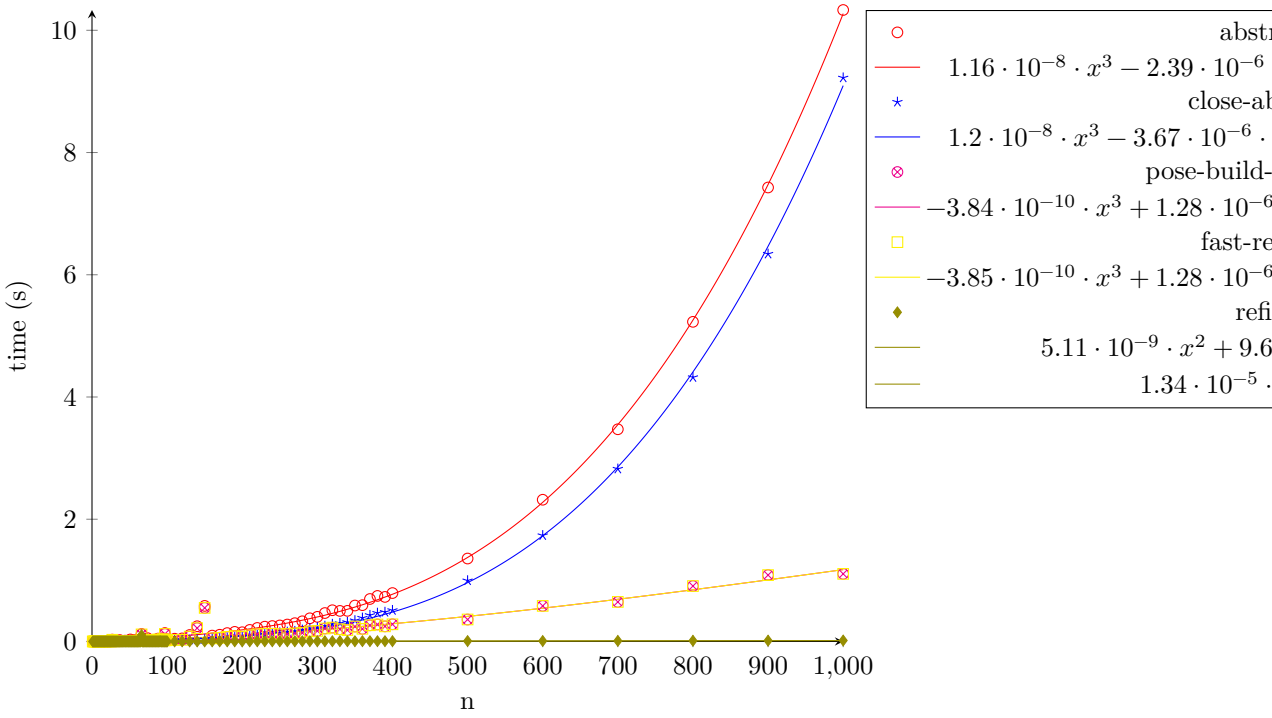


Figure 11: timing-rewrite-repeated-app-fast-rewrite

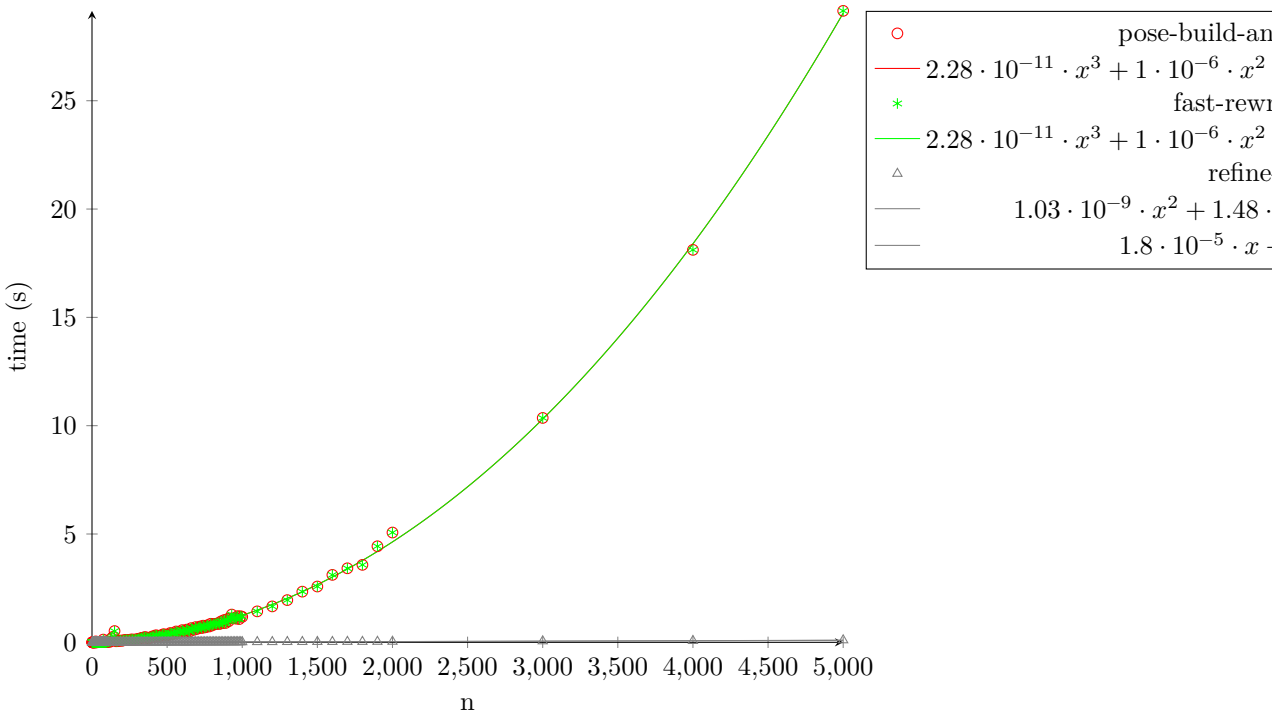


Figure 12: timing-rewrite-repeated-app-fast-rewrite-no-abstract

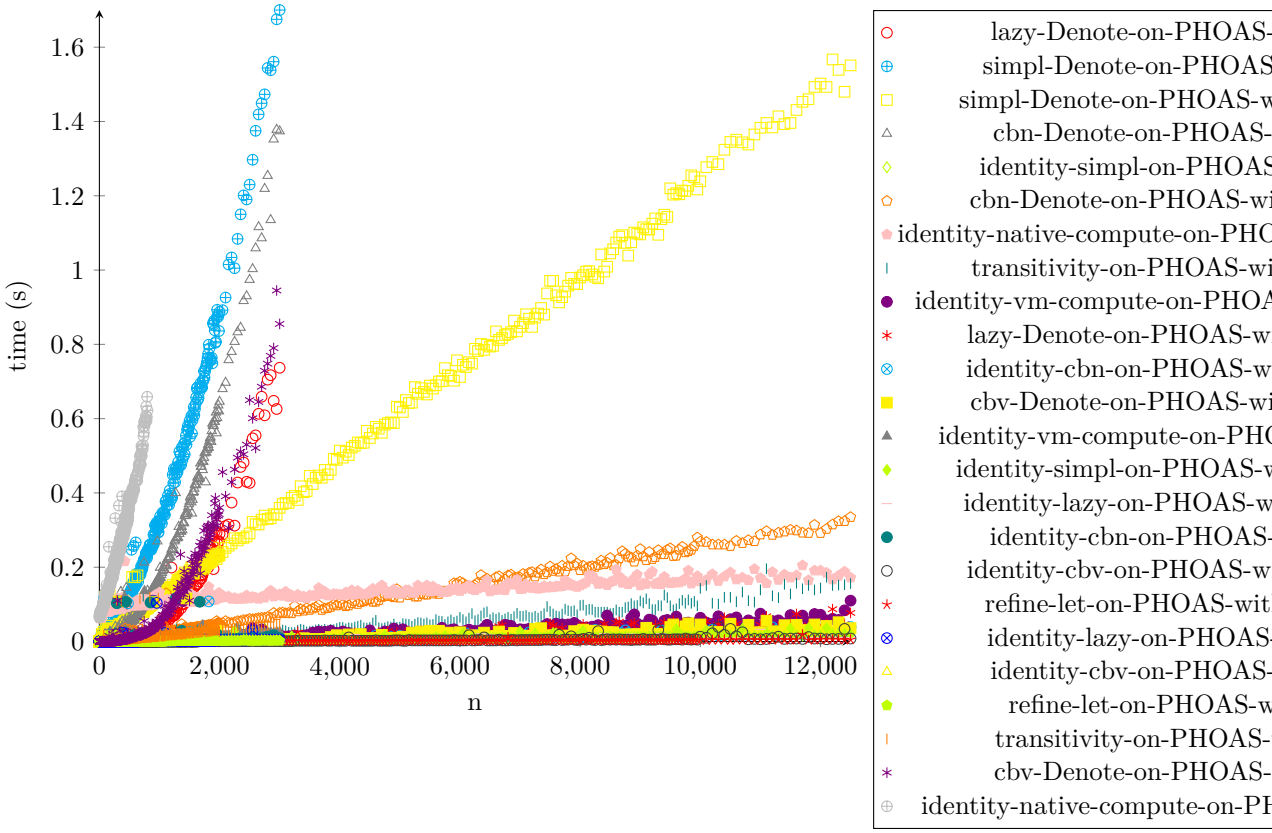
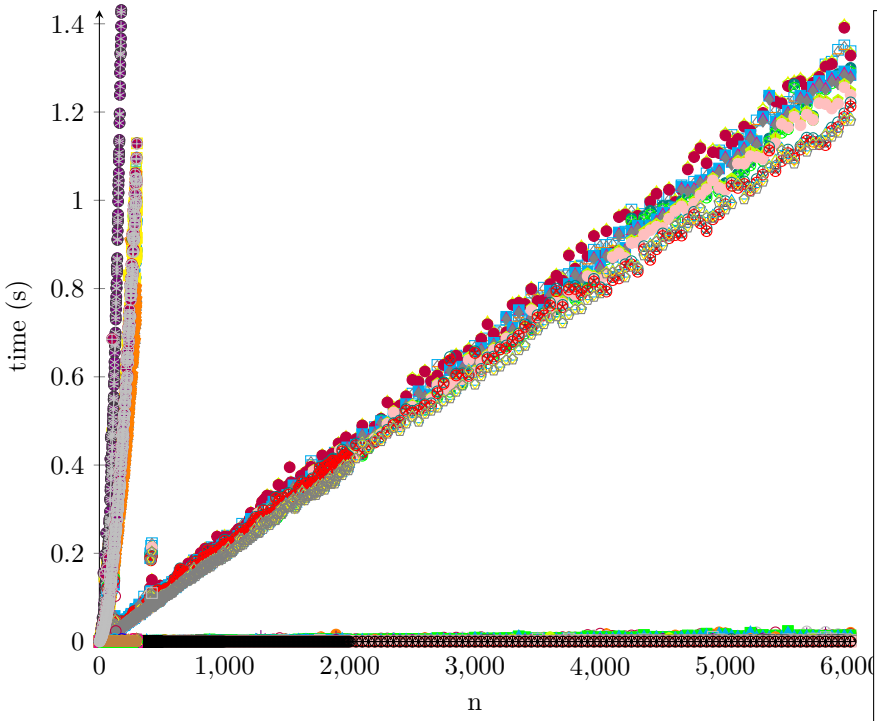


Figure 13: timing-Reify/BaselineStats

Figure 14: timing-Reify/CanonicalStructures


time (s)
1.4
1.2
1
0.8
0.6
0.4
0.2
0
0
1,000
2,000
3,000
4,000
5,000
6,000
n

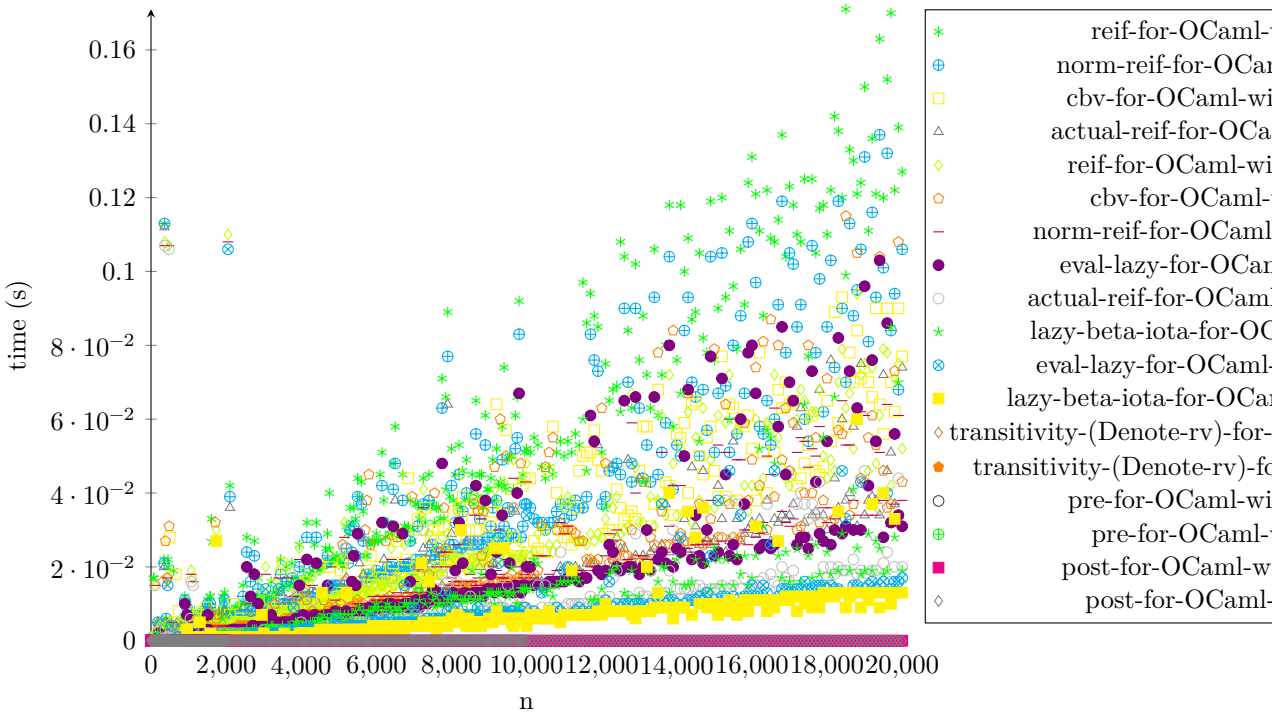
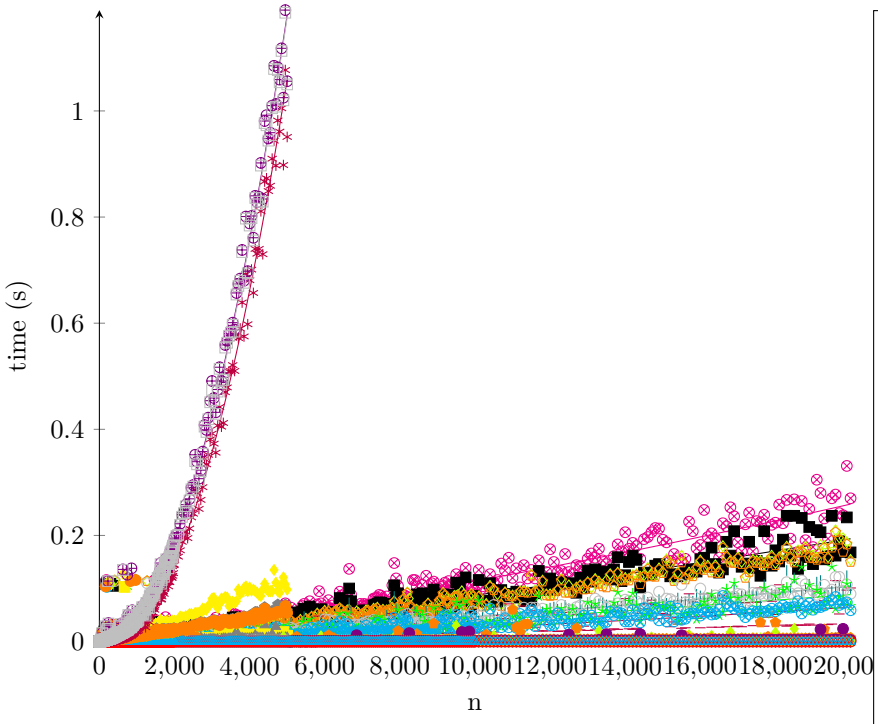


Figure 16: timing-Reify/OCaml


time (s)
0
0.2
0.4
0.6
0.8
1
0
2,000
4,000
6,000
8,000
10,000
12,000
14,000
16,000
18,000
20,00
n
lazy-beta-iota-for-beta
$-1.04 \cdot 10^{-10} \cdot x^2 +$
lazy-beta-iota-for-beta–I
$1.2 \cdot 10^{-10} \cdot x^2 + 8.$
reif-for-Parametr
$1.59 \cdot 10^{-10} \cdot x^2 + 9$
norm-reif-for-Param
$9.9 \cdot 10^{-11} \cdot x^2 + 7$
reif-for-Parametrici
$1.02 \cdot 10^{-10} \cdot x^2 + 7$
norm-reif-for-Paramet
$1.01 \cdot 10^{-10} \cdot x^2 + 6$
lazy-beta-iota-for-Para
$6.41 \cdot 10^{-11} \cdot x^2 +$
actual-reif-for-Param
$5.46 \cdot 10^{-11} \cdot x^2 + 4$
actual-reif-for-Paramet
$7.02 \cdot 10^{-11} \cdot x^2 + 3$
eval-lazy-for-Param
$4.56 \cdot 10^{-11} \cdot x^2 + 3$
eval-lazy-for-Parametr
$3.08 \cdot 10^{-11} \cdot x^2 + 2$
cbv-for-beta–Param
$-1.48 \cdot 10^{-11} \cdot x^2 +$
cbv-for-beta–Para
$1.53 \cdot 10^{-10} \cdot x^2 + 1$
cbv-for-Parametrici
$5.02 \cdot 10^{-12} \cdot x^2 + 2$
cbv-for-Parametr
$-4.9 \cdot 10^{-12} \cdot x^2 + 5$
lazy-beta-iota-for-Param
$6.06 \cdot 10^{-12} \cdot x^2 + 1$
eval-lazy-for-beta–Par
$4.4 \cdot 10^{-11} \cdot x^2 + 4$
transitivity-(Denote-rv)-for-b
$4.4 \cdot 10^{-11} \cdot x^2 + 4$
transitivity-(Denote-rv)-for
$4.4 \cdot 10^{-11} \cdot x^2 + 4$
transitivity-(Denote-rv)-for-P
$4.4 \cdot 10^{-11} \cdot x^2 + 4$
transitivity-(Denote-rv)-for
$4.4 \cdot 10^{-11} \cdot x^2 + 4$
pre-for-beta–Param
$4.4 \cdot 10^{-11} \cdot x^2 + 4$
pre-for-beta–Para
$4.4 \cdot 10^{-11} \cdot x^2 + 4$
pre-for-Parametrici
$2.58 \cdot 10^{-14} \cdot x^2 - 5.$
pre-for-Parametr
$2.58 \cdot 10^{-14} \cdot x^2 - 5.$

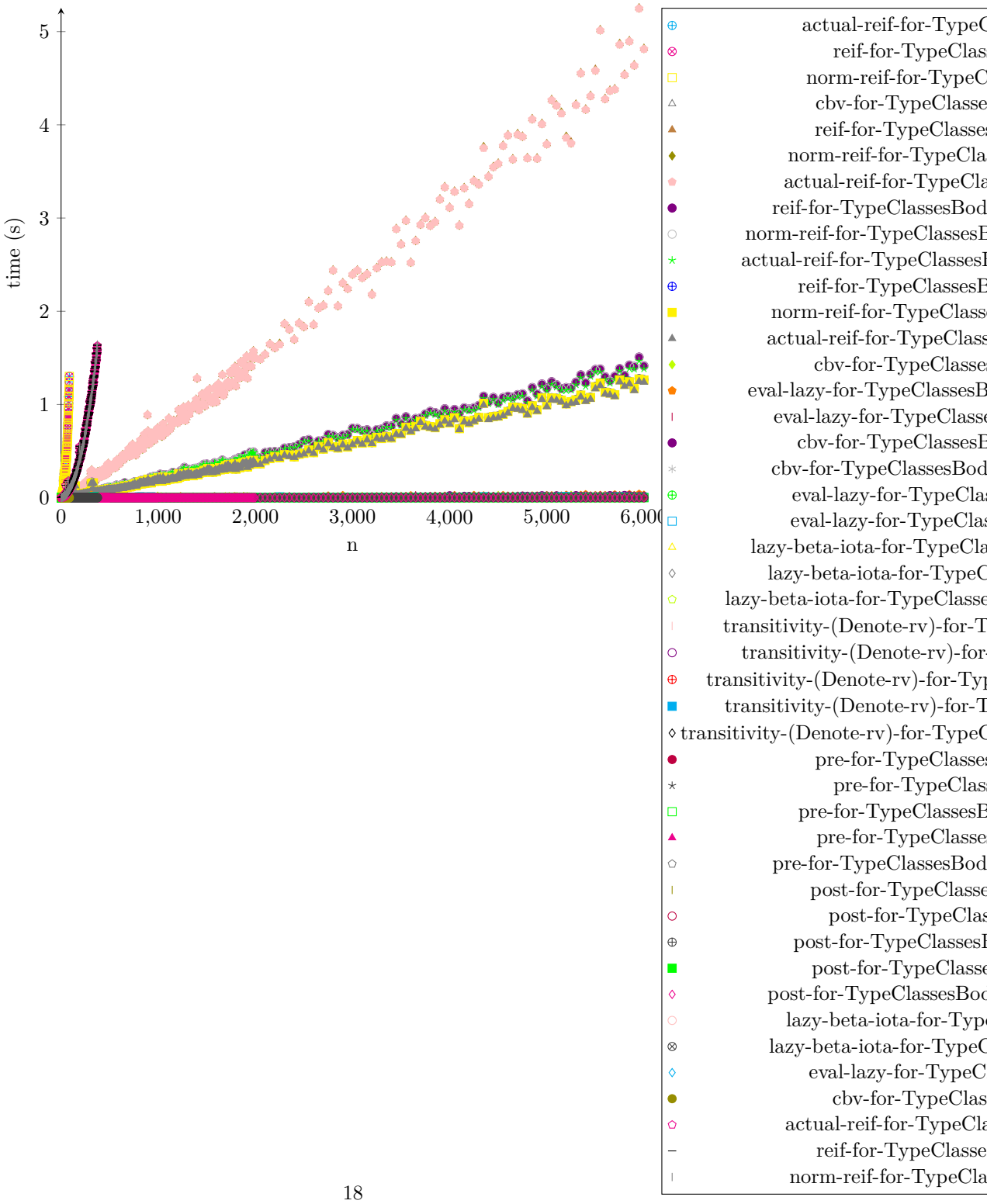


Figure 18: timing-Reify/TypeClasses

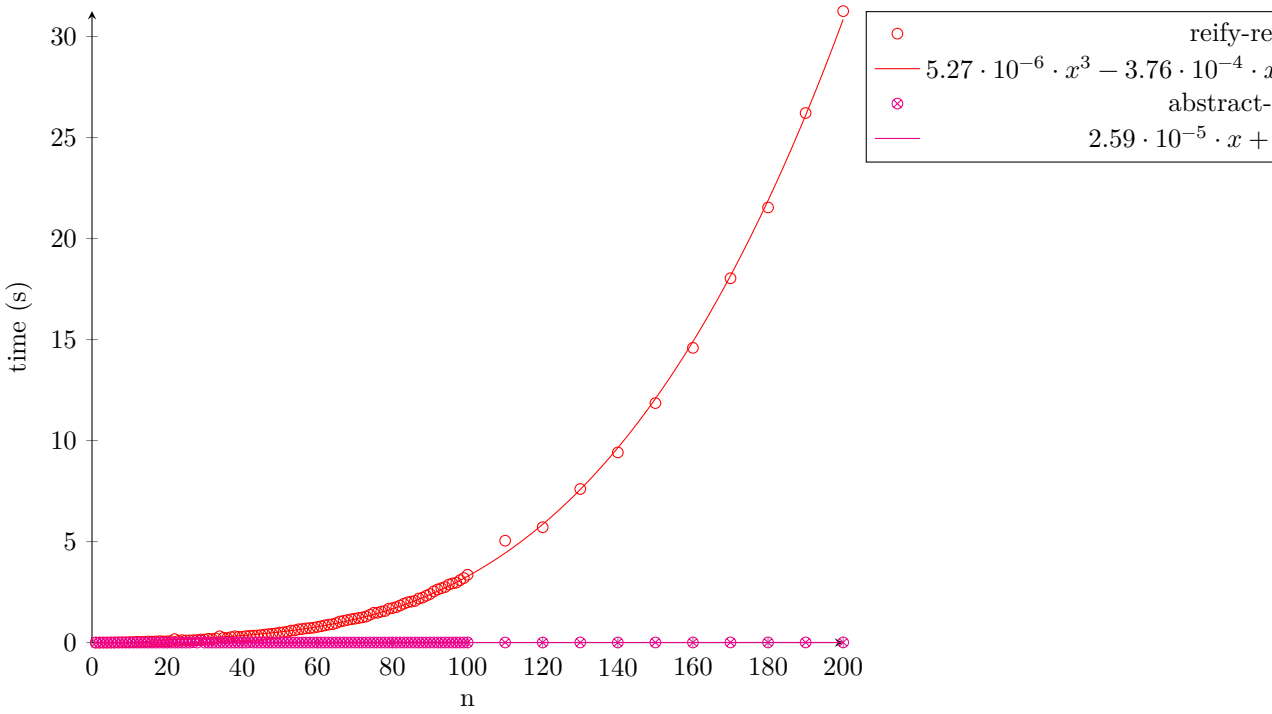


Figure 19: timing-typeclass-reification-let-in-HOAS

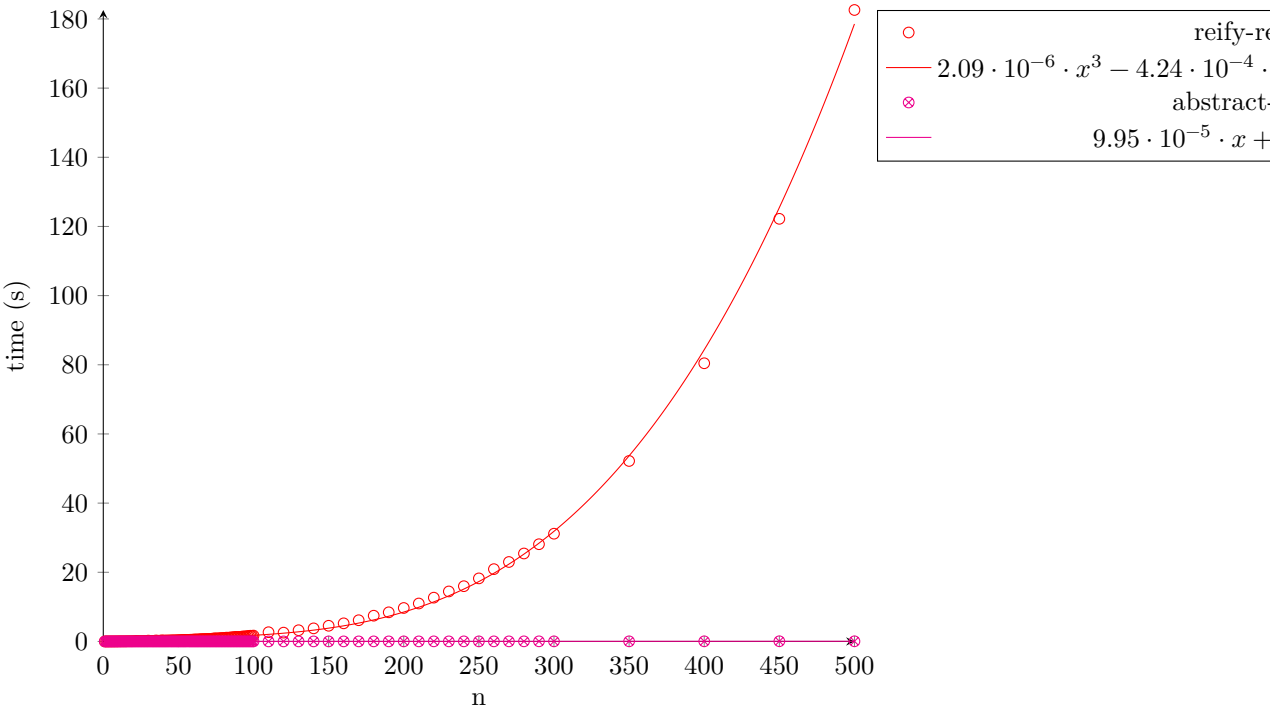


Figure 20: timing-typeclass-reification-let-in-PHOAS

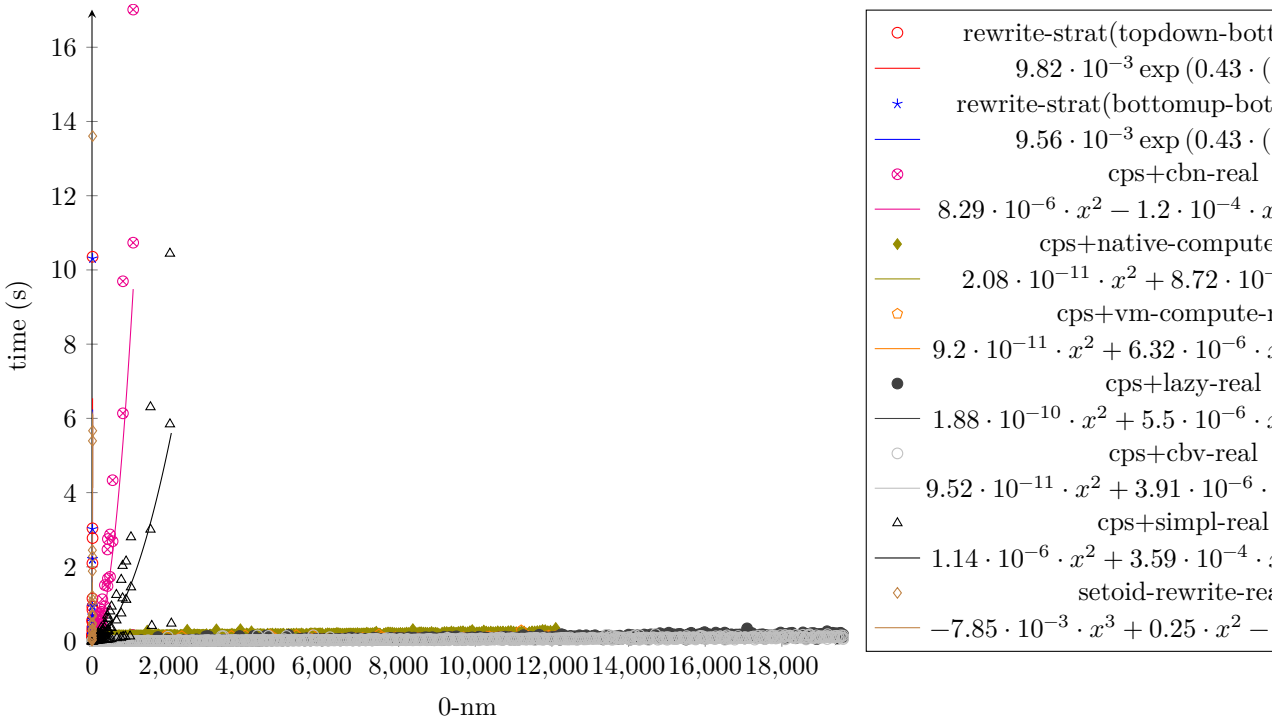


Figure 21: timing-rewrite-lift-lets-map param-1-n 1, param-2-m 1

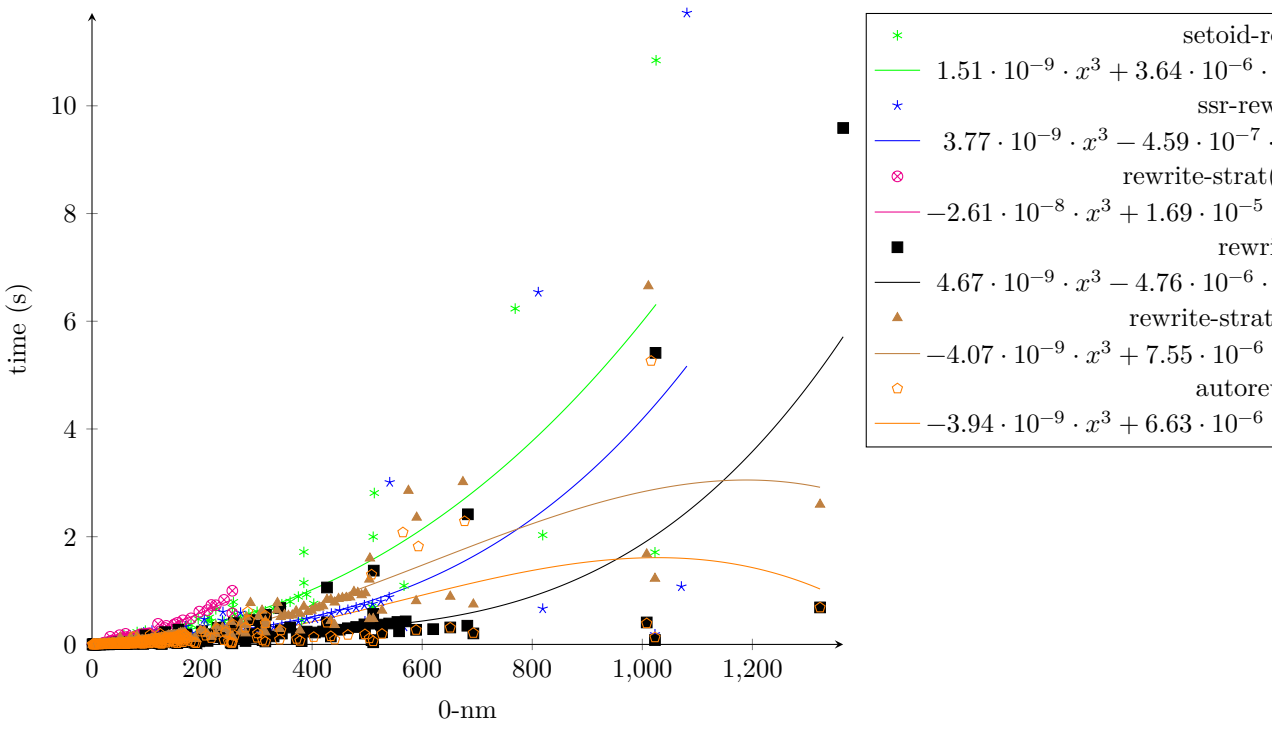


Figure 22: timing-rewrite-plus-0-tree param-1-n 0, param-2-m 1, param-3-input-size 5, param-4-output-size 3, param-5-num-rewrites 1

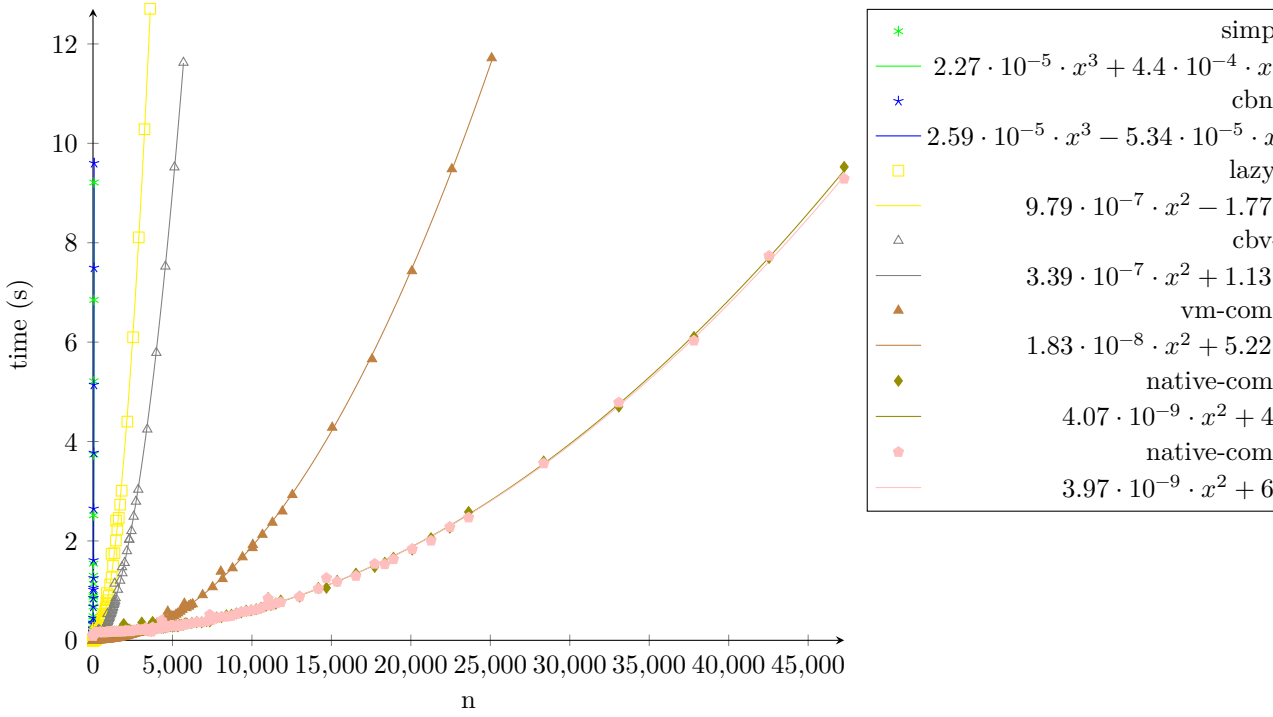


Figure 23: timing-sieve-of-eratosthenes

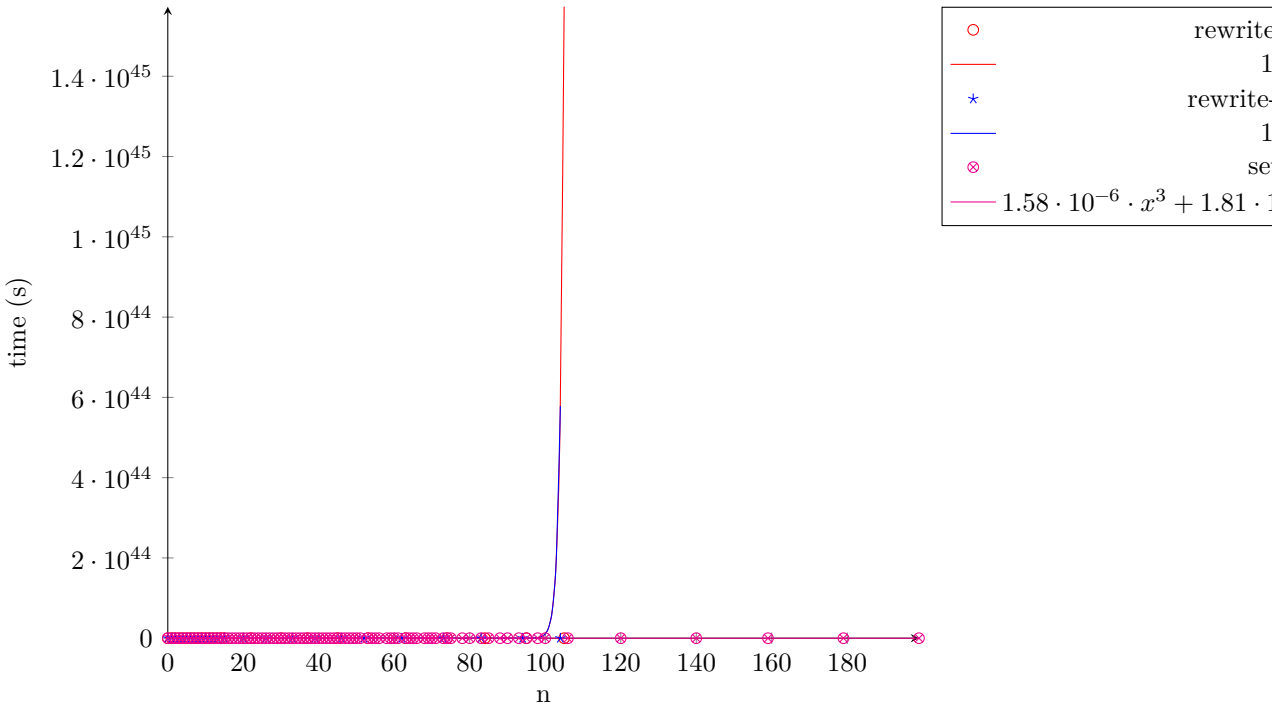


Figure 24: timing-rewrite-under-lets-plus-0