Figure 1: timing-pattern

1

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

The figure shows a plot with axis "time (s)" (vertical) and "0-univ-count" (horizontal), with legend entries:

- abstract-real: $1.79 \cdot 10^{-9} \cdot x^2 + 1.92 \cdot 10^{-4} \cdot$
- abstract-user: $2 \cdot 10^{-9} \cdot x^2 + 1.86 \cdot 10^{-4} \cdot x$
- close-abstract-real: $1.79 \cdot 10^{-9} \cdot x^2 + 1.32 \cdot 10^{-4} \cdot$
- close-abstract-user: $1.99 \cdot 10^{-9} \cdot x^2 + 1.27 \cdot 10^{-4} \cdot$
- exact-real: $5.95 \cdot 10^{-5} \cdot x - 3.15$
- exact-user: $5.84 \cdot 10^{-5} \cdot x - 3.56$
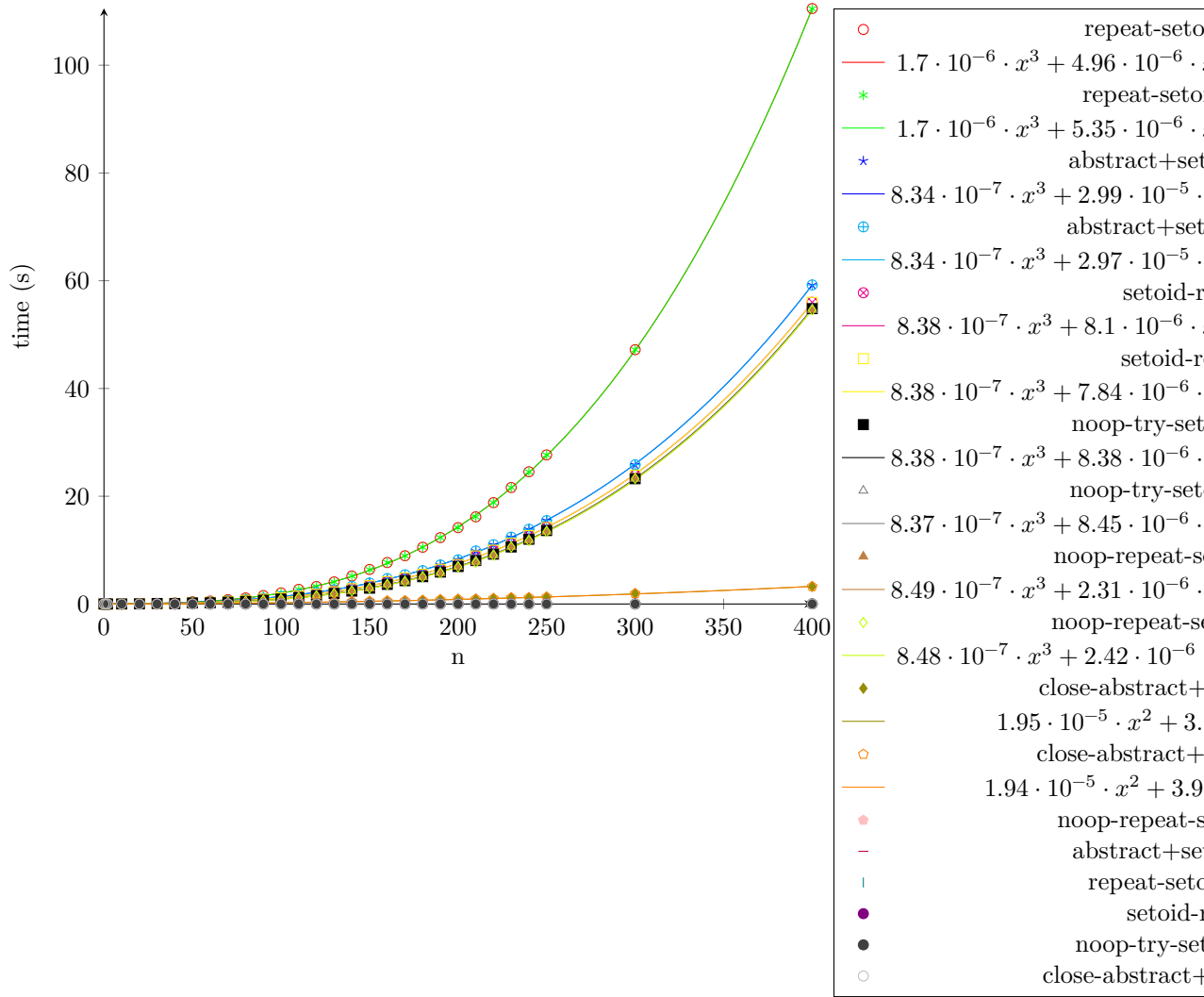- abstract-sys
- close-abstract-sys
- exact-sys

Figure 3: timing-repeat-setoid-rewrite-under-binders
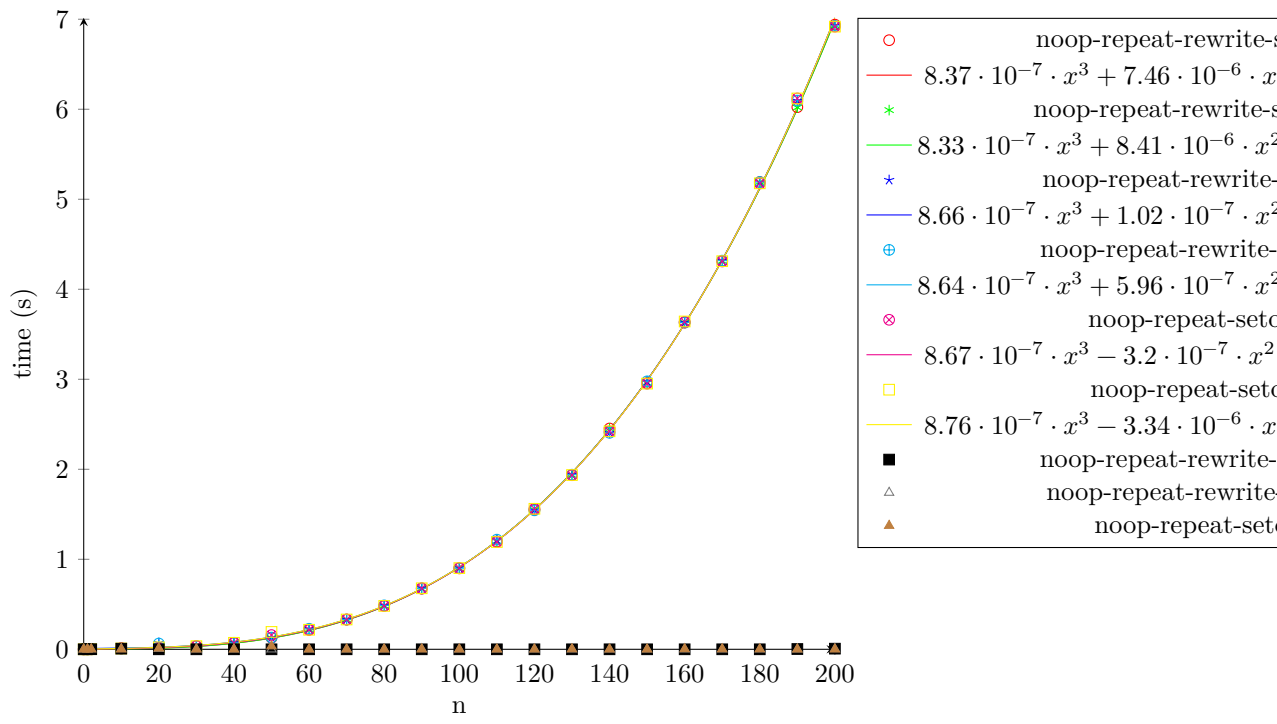
Figure 4: timing-repeat-setoid-rewrite-under-binders-noop

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

The legend entries (partially cut off):

- abstract+rewrite!-
- $2.62 \cdot 10^{-5} \cdot x^2 - 6.37 \cdot 10^{-4} \cdot $
- abstract+rewrite!-u
- $2.62 \cdot 10^{-5} \cdot x^2 - 6.35 \cdot 10^{-4} \cdot $
- abstract+autorewrit
- $2.59 \cdot 10^{-5} \cdot x^2 - 6.08 \cdot 10^{-4} \cdot $
- abstract+autorewrit
- $2.59 \cdot 10^{-5} \cdot x^2 - 5.94 \cdot 10^{-4} \cdot $
- rewrite!-real
- $1.72 \cdot 10^{-5} \cdot x^2 - 6.58 \cdot 10^{-4} \cdot $
- rewrite!-user
- $1.71 \cdot 10^{-5} \cdot x^2 - 6.6 \cdot 10^{-4} \cdot x$
- autorewrite-rea
- $1.7 \cdot 10^{-5} \cdot x^2 - 6.62 \cdot 10^{-4} \cdot $
- autorewrite-user
- $1.7 \cdot 10^{-5} \cdot x^2 - 6.48 \cdot 10^{-4} \cdot $
- close-abstract+rewrit
- $9.05 \cdot 10^{-6} \cdot x^2 + 1.25 \cdot 10^{-7} \cdot $
- close-abstract+rewrit
- $9.04 \cdot 10^{-6} \cdot x^2 + 3.6 \cdot 10^{-6} \cdot x$
- close-abstract+autorew
- $8.9 \cdot 10^{-6} \cdot x^2 + 2.76 \cdot 10^{-5} \cdot x$
- close-abstract+autorew
- $8.9 \cdot 10^{-6} \cdot x^2 + 3.05 \cdot 10^{-5} \cdot x$
- autorewrite-sys
- abstract+autorewrit
- rewrite!-sys
- abstract+rewrite!-
- rewrite?-noop-us
- $2.29 \cdot 10^{-5} \cdot x - 8.03$
- rewrite?-noop-re
- $2.29 \cdot 10^{-5} \cdot x - 7.93$
- autorewrite-noop-u
- $2.41 \cdot 10^{-5} \cdot x - 8.94$
- autorewrite-noop-
- $2.36 \cdot 10^{-5} \cdot x - 8.66$
- rewrite?-noop-sy
- close-abstract+rewrit
- close-abstract+autorew
- autorewrite-noop-

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

6
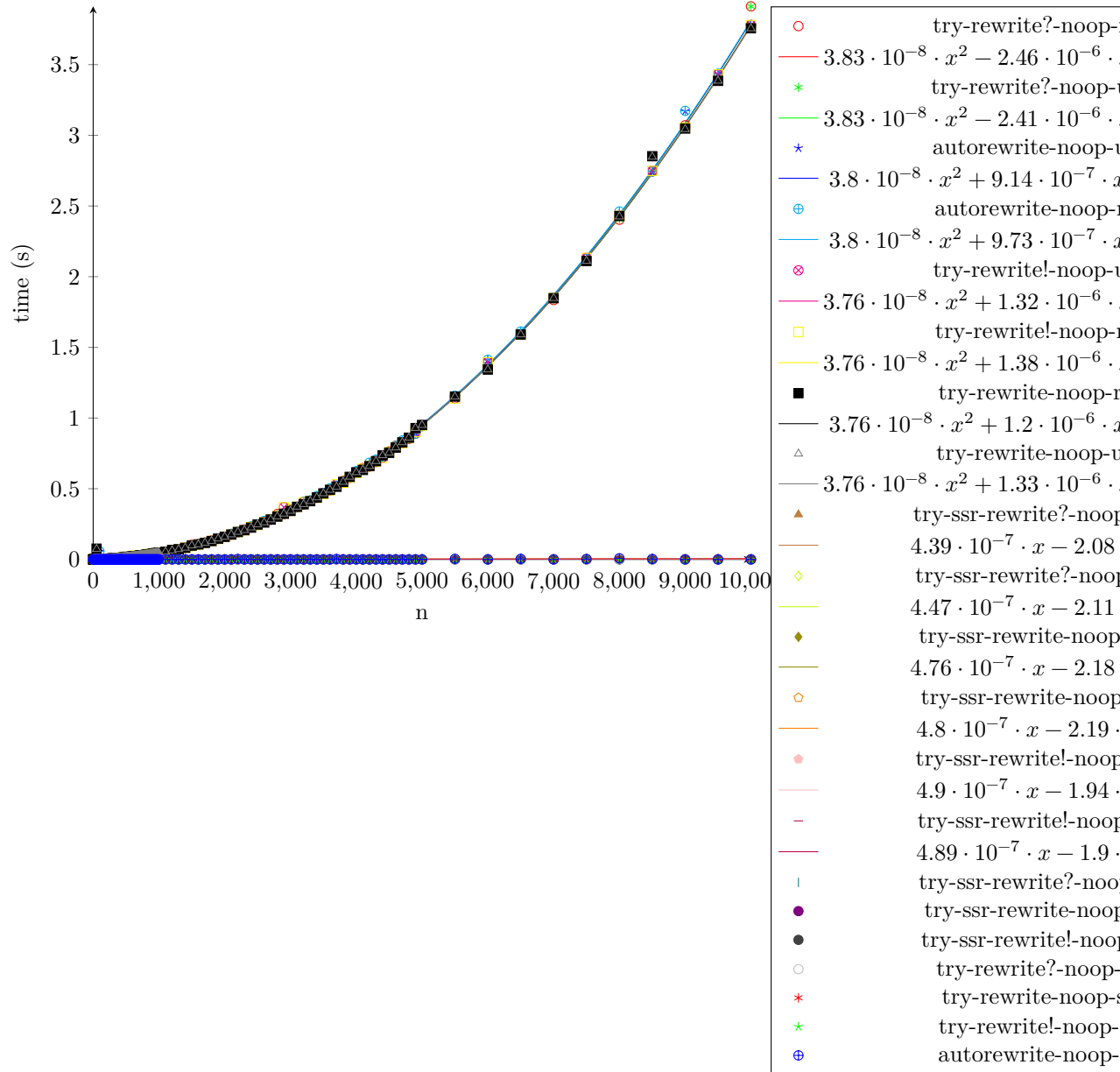
Figure 7: timing-rewrite-repeated-app-autorewrite-noop

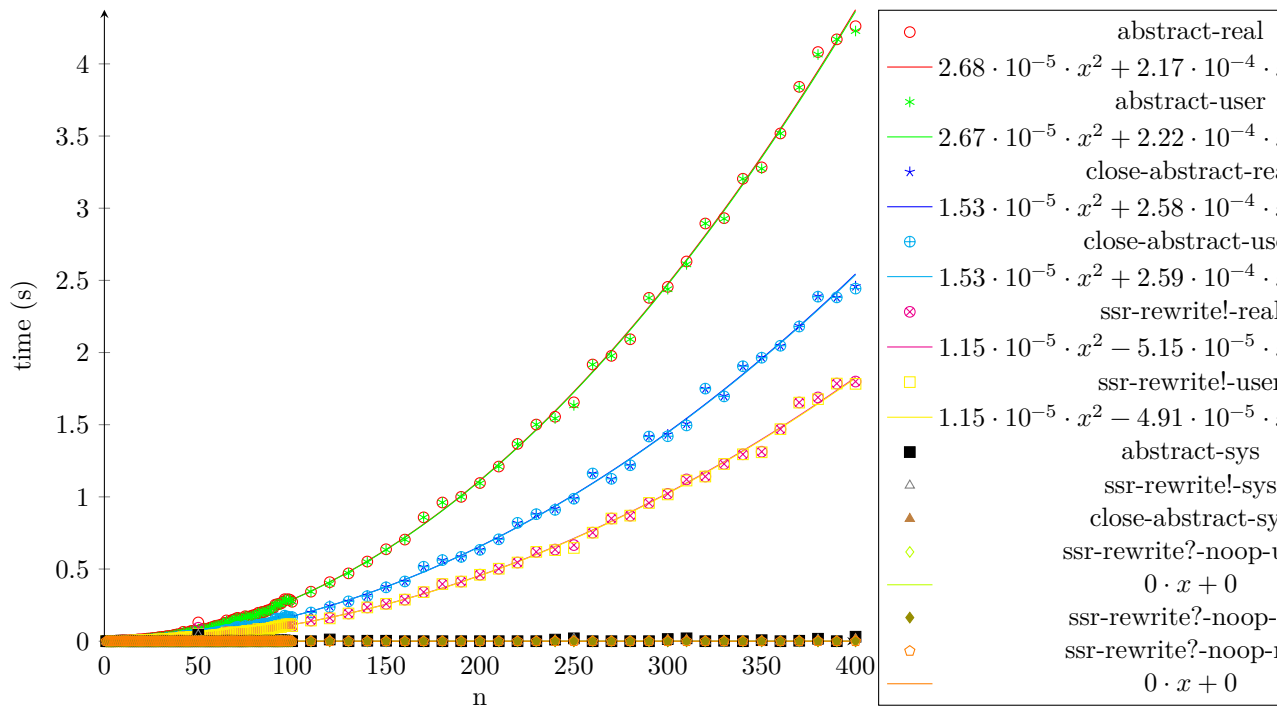Legend (partially cut off on right edge):

- ○ try-rewrite?-noop-
- — $3.83 \cdot 10^{-8} \cdot x^2 - 2.46 \cdot 10^{-6} \cdot$
- ∗ try-rewrite?-noop-u
- — $3.83 \cdot 10^{-8} \cdot x^2 - 2.41 \cdot 10^{-6} \cdot$
- ⋆ autorewrite-noop-u
- — $3.8 \cdot 10^{-8} \cdot x^2 + 9.14 \cdot 10^{-7} \cdot x$
- ⊕ autorewrite-noop-
- — $3.8 \cdot 10^{-8} \cdot x^2 + 9.73 \cdot 10^{-7} \cdot x$
- ⊗ try-rewrite!-noop-u
- — $3.76 \cdot 10^{-8} \cdot x^2 + 1.32 \cdot 10^{-6} \cdot$
- □ try-rewrite!-noop-
- — $3.76 \cdot 10^{-8} \cdot x^2 + 1.38 \cdot 10^{-6} \cdot$
- ■ try-rewrite-noop-
- — $3.76 \cdot 10^{-8} \cdot x^2 + 1.2 \cdot 10^{-6} \cdot x$
- △ try-rewrite-noop-u
- — $3.76 \cdot 10^{-8} \cdot x^2 + 1.33 \cdot 10^{-6} \cdot$
- ▲ try-ssr-rewrite?-noop
- — $4.39 \cdot 10^{-7} \cdot x - 2.08$
- ◇ try-ssr-rewrite?-noop
- — $4.47 \cdot 10^{-7} \cdot x - 2.11$
- ◆ try-ssr-rewrite-noop
- — $4.76 \cdot 10^{-7} \cdot x - 2.18$
- ⬠ try-ssr-rewrite-noop
- — $4.8 \cdot 10^{-7} \cdot x - 2.19$
- ⬠ try-ssr-rewrite!-noop
- — $4.9 \cdot 10^{-7} \cdot x - 1.94$
- − try-ssr-rewrite!-noop
- — $4.89 \cdot 10^{-7} \cdot x - 1.9$
- | try-ssr-rewrite?-noo
- ● try-ssr-rewrite-noop
- ● try-ssr-rewrite!-noop
- ○ try-rewrite?-noop-
- ∗ try-rewrite-noop-s
- ∗ try-rewrite!-noop-
- ⊕ autorewrite-noop-

Figure 8: timing-rewrite-repeated-app-ssrrewrite
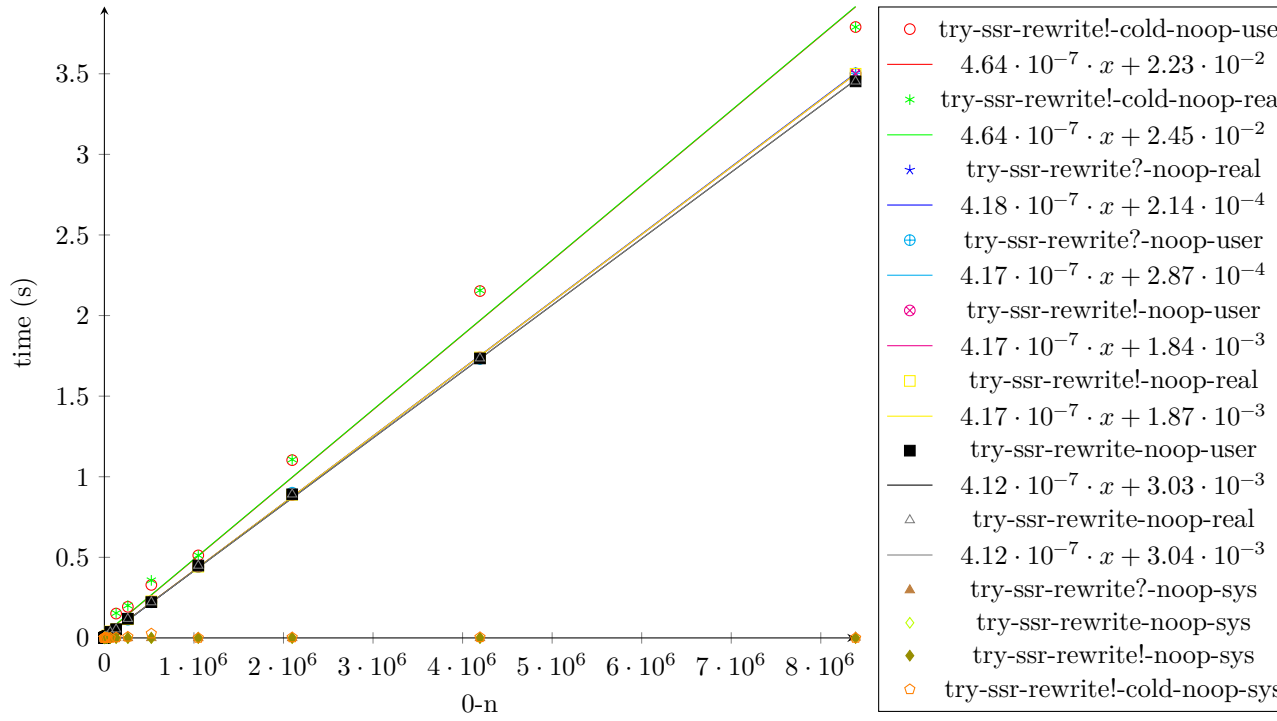
Figure 9: timing-rewrite-repeated-app-ssrrewrite-noop param-1-lgn 1
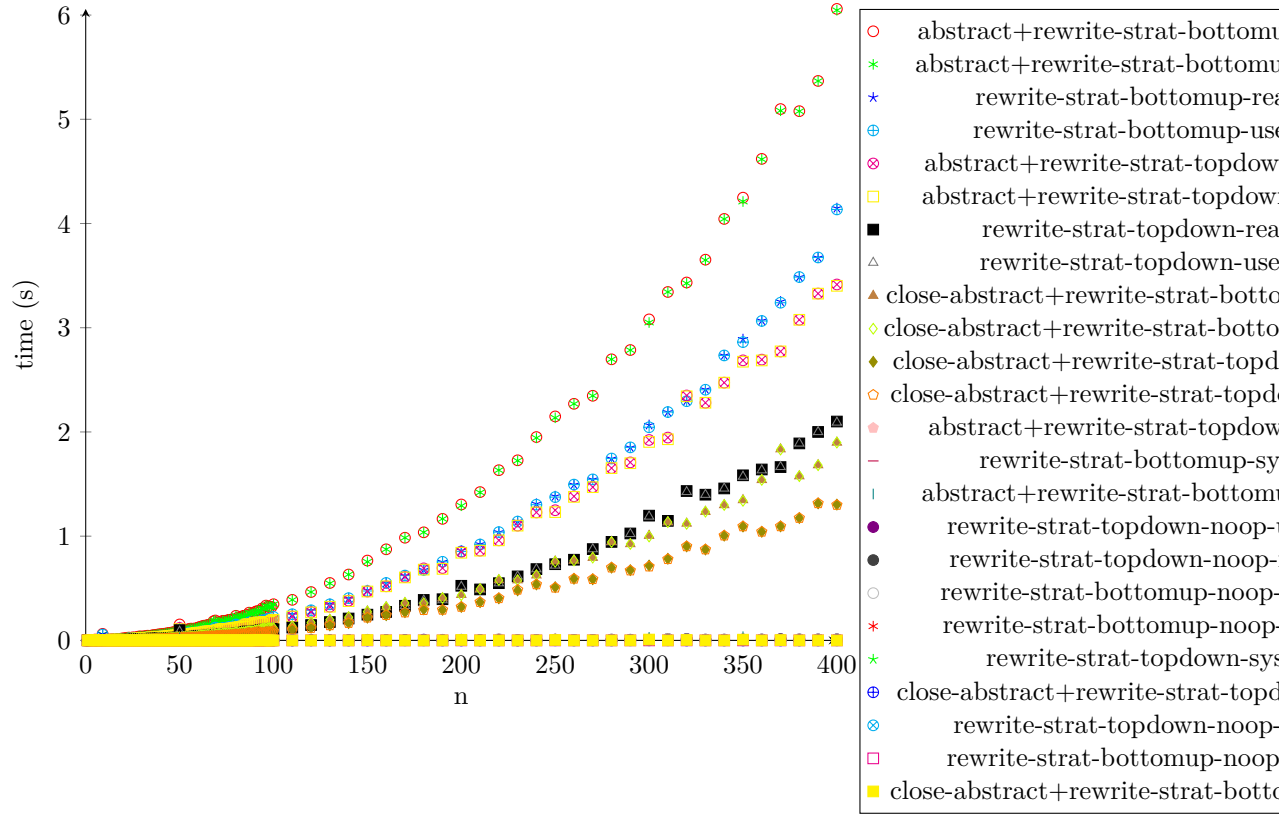
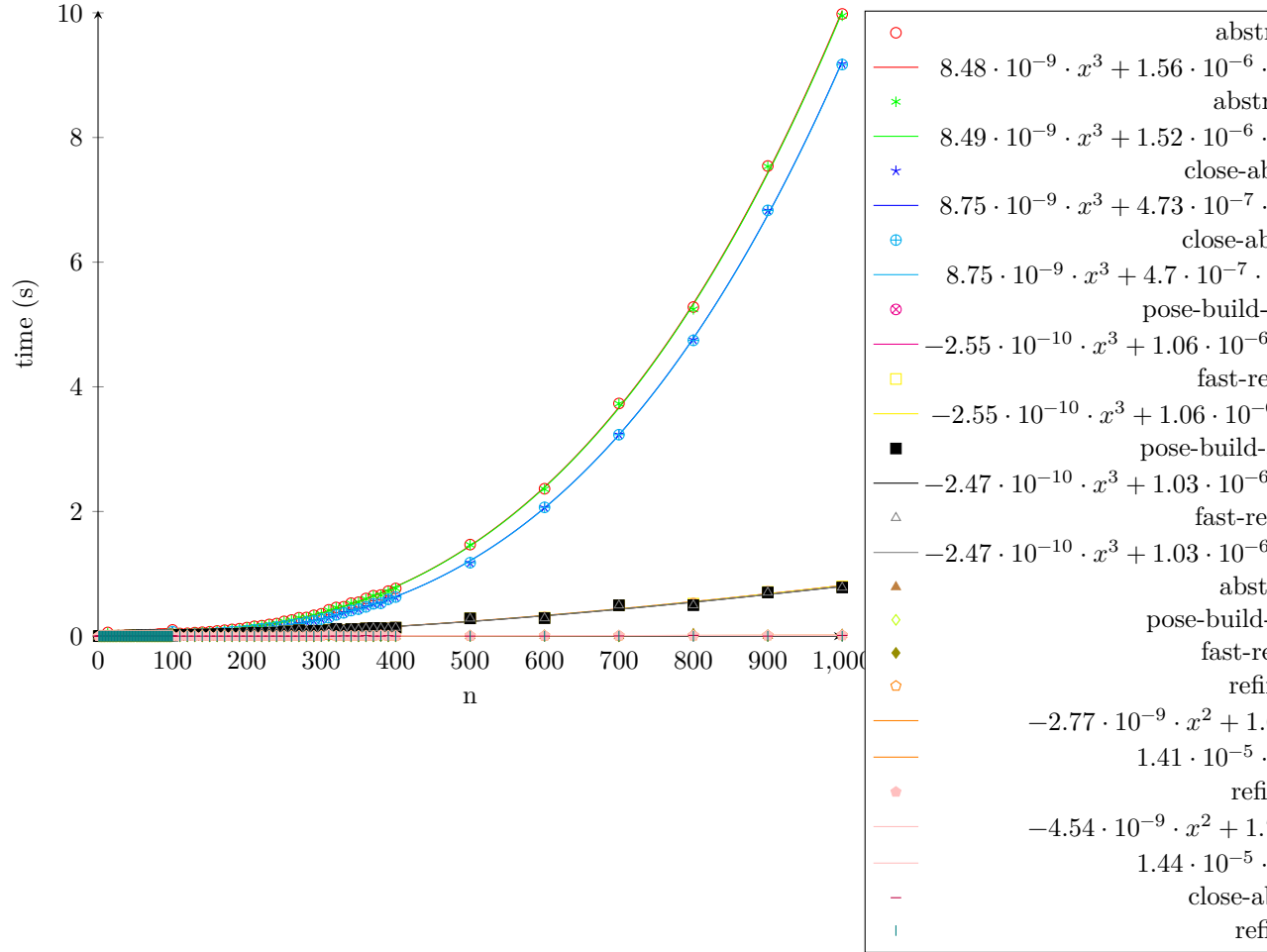Figure 10: timing-rewrite-repeated-app-rewrite-strat

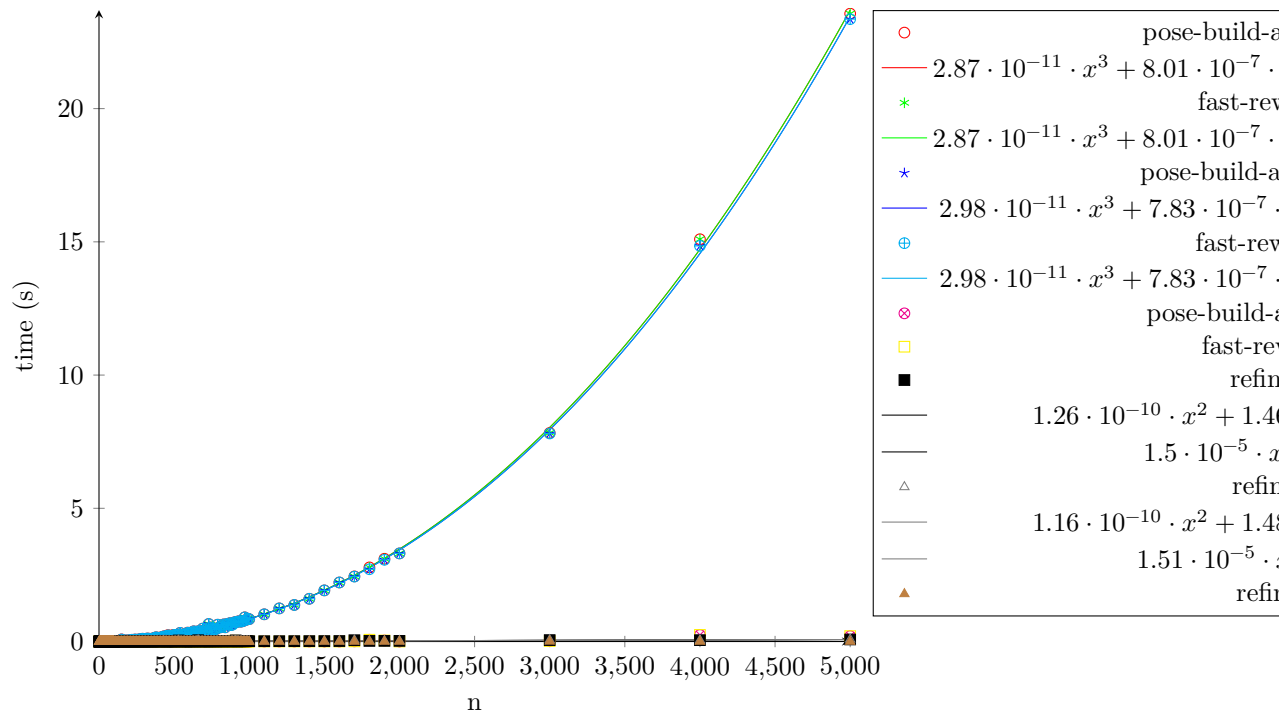Figure 11: timing-rewrite-repeated-app-fast-rewrite

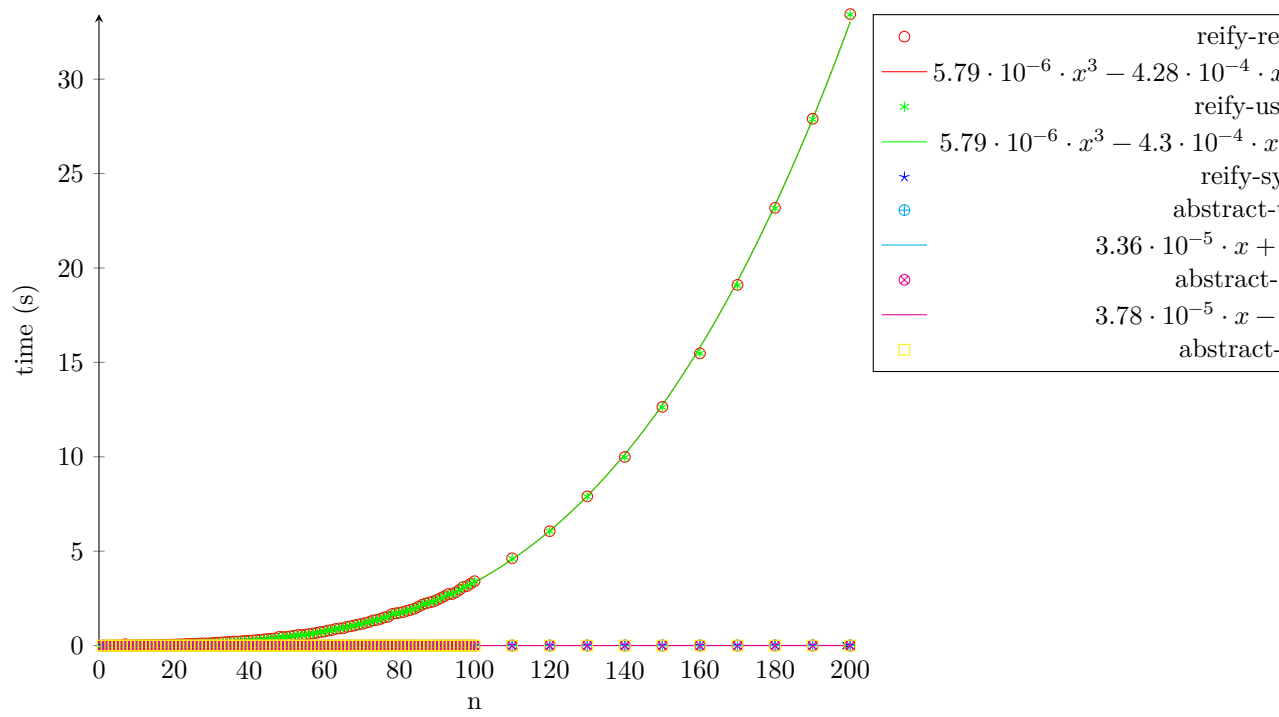Figure 12: timing-rewrite-repeated-app-fast-rewrite-no-abstract
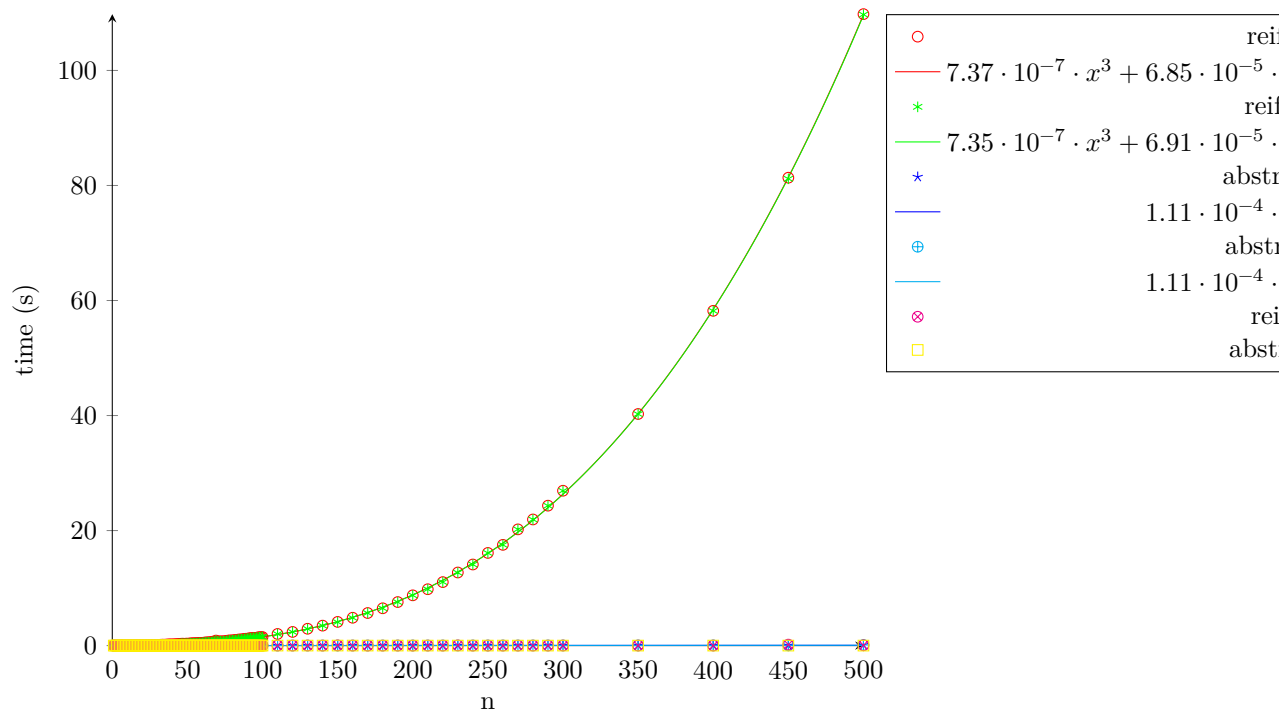
Figure 13: timing-typeclass-reification-let-in-HOAS

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