

Figure 1: timing-pattern

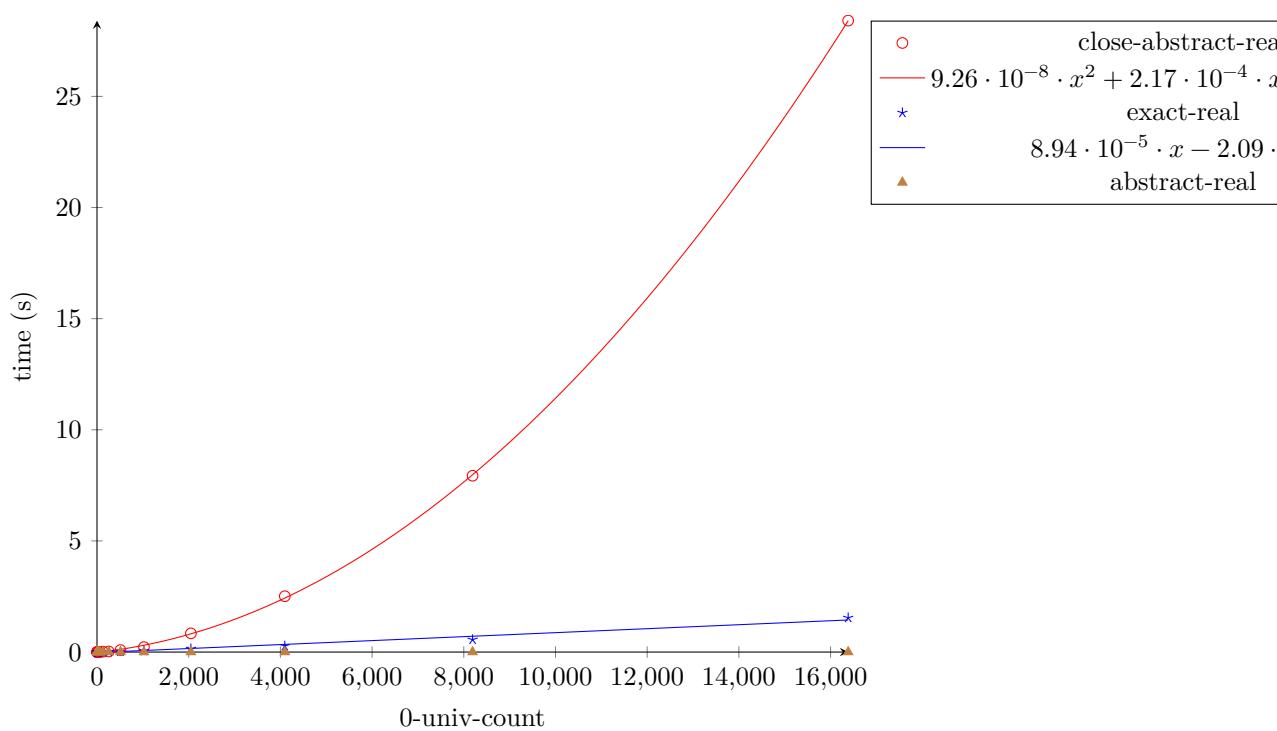


Figure 2: timing-n-polymorphic-universes param-1-n 0

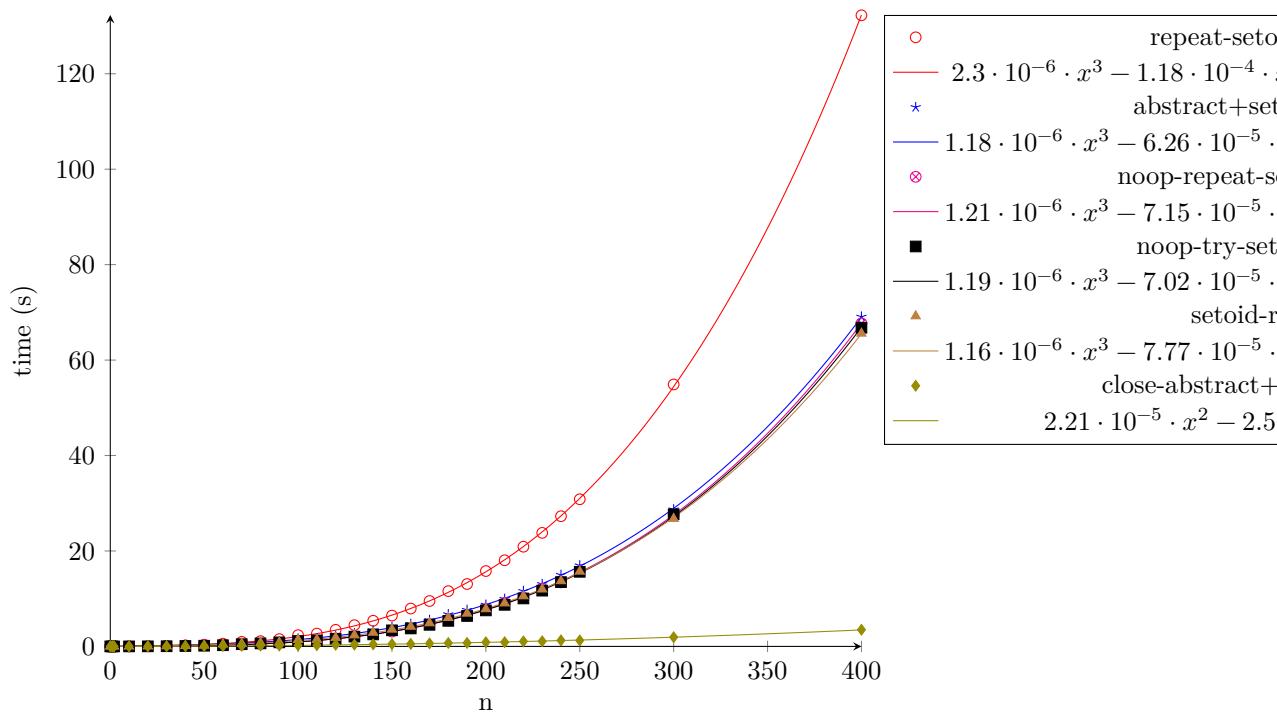


Figure 3: timing-repeat-setoid-rewrite-under-binders

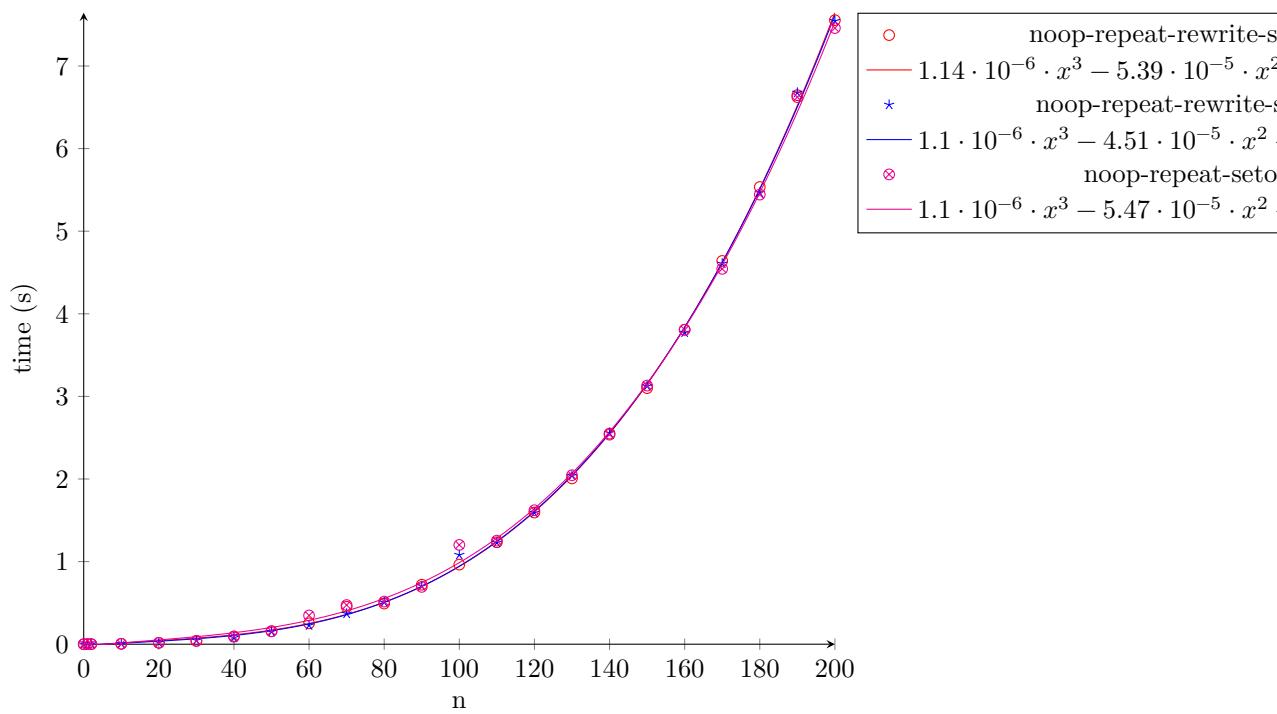


Figure 4: timing-repeat-setoid-rewrite-under-binders-noop

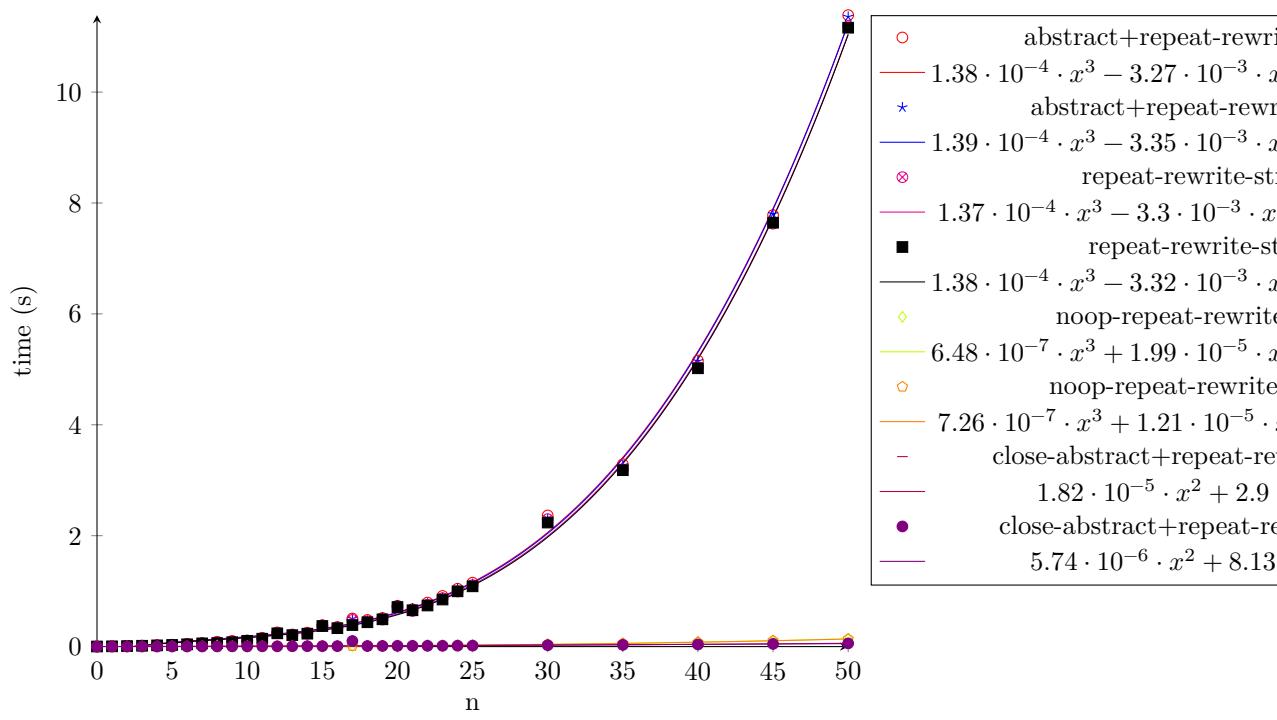


Figure 5: timing-rewrite-strat-under-binders

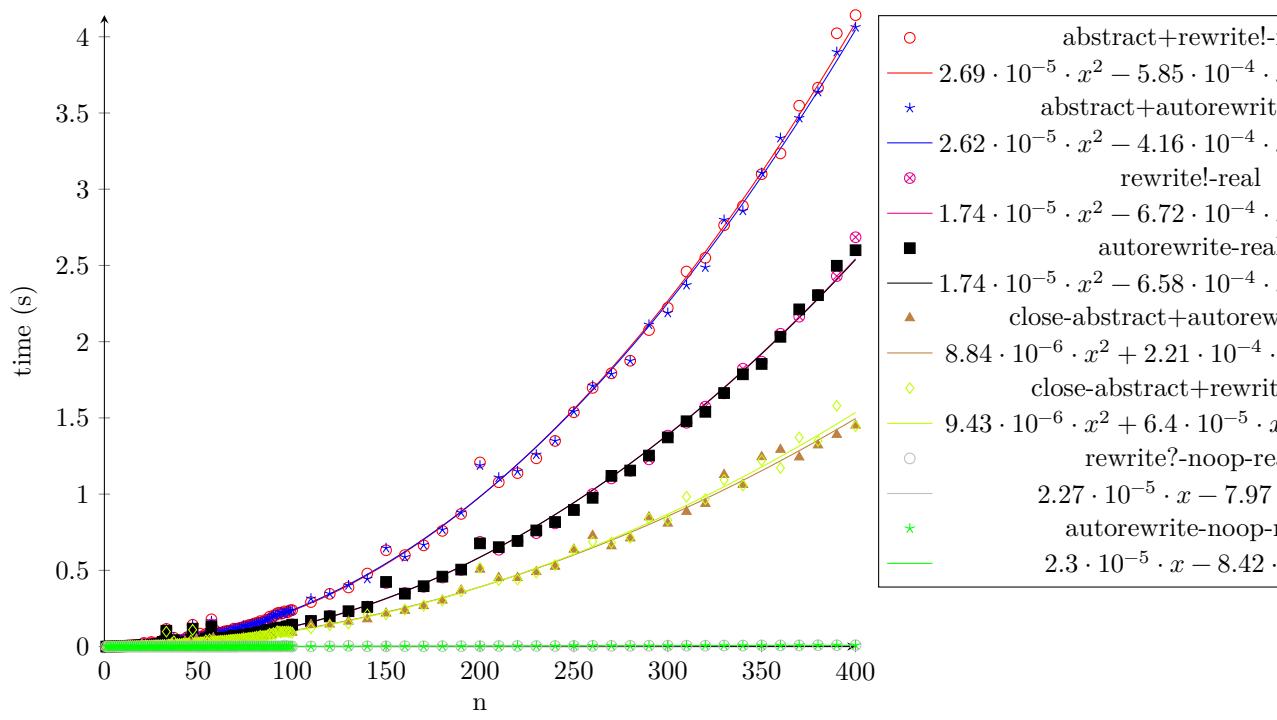


Figure 6: timing-rewrite-repeated-app-autorewrite

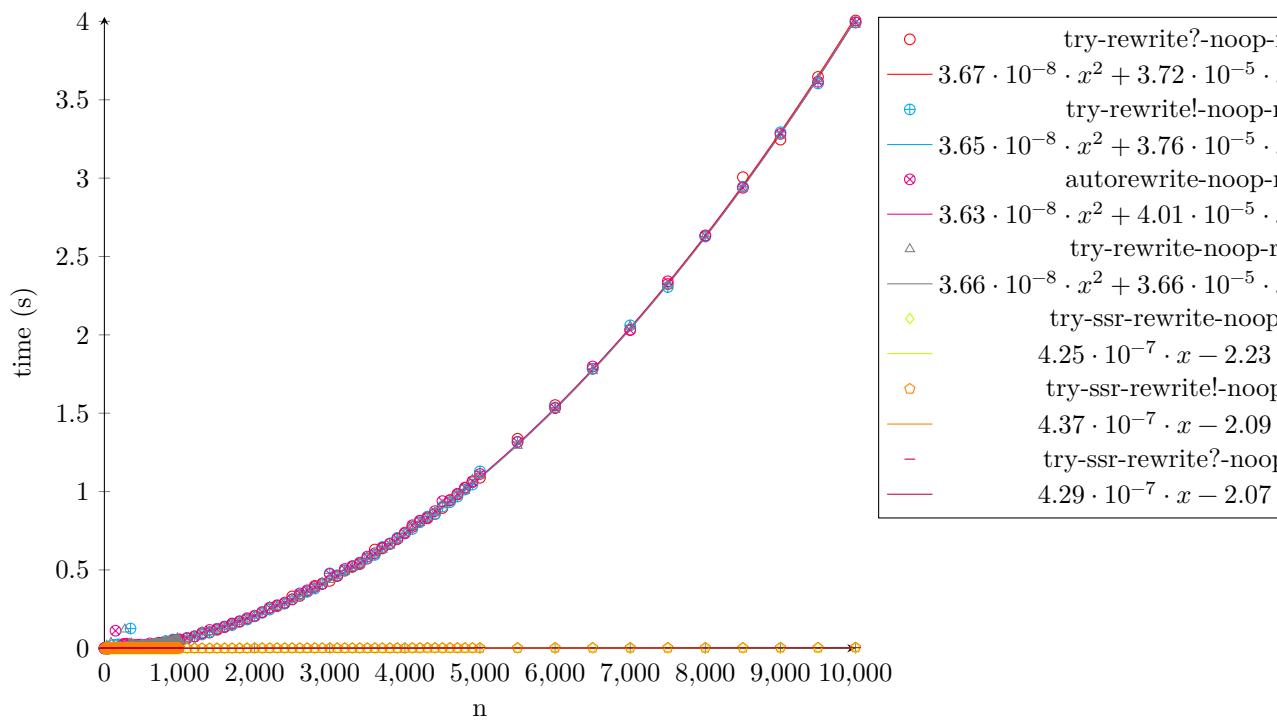


Figure 7: timing-rewrite-repeated-app-autorewrite-noop

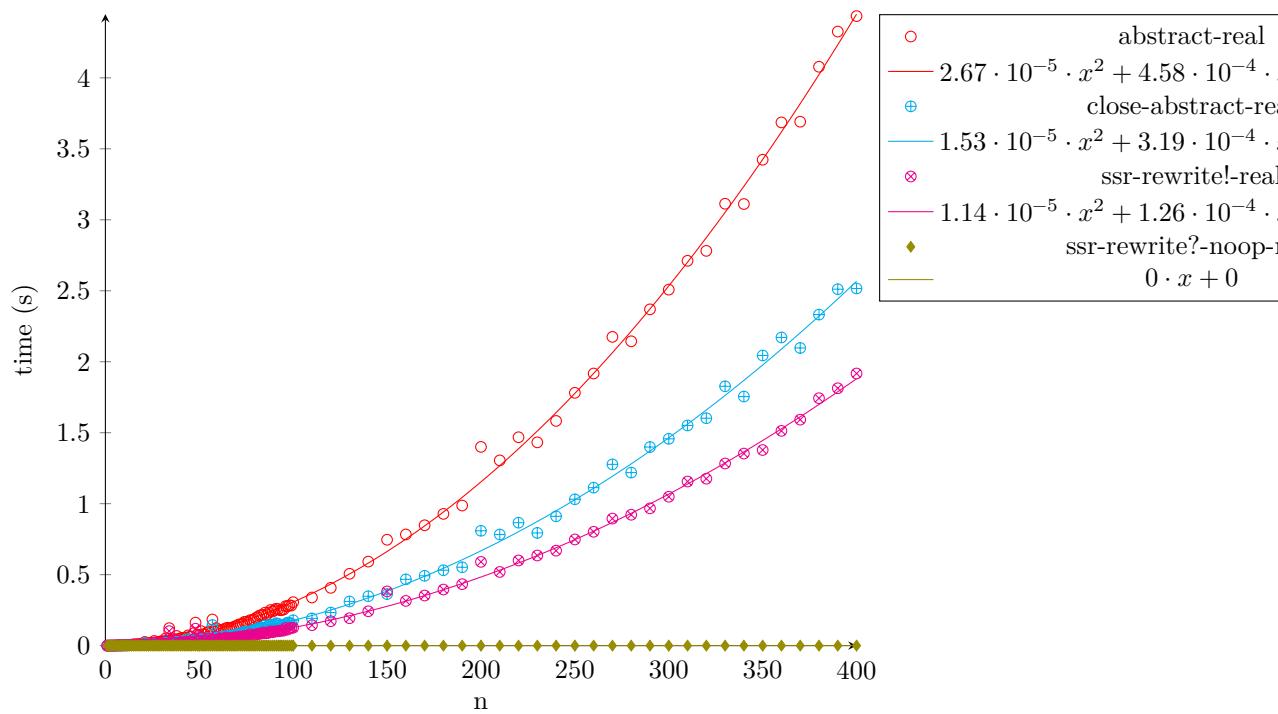


Figure 8: timing-rewrite-repeated-app-ssrrewrite

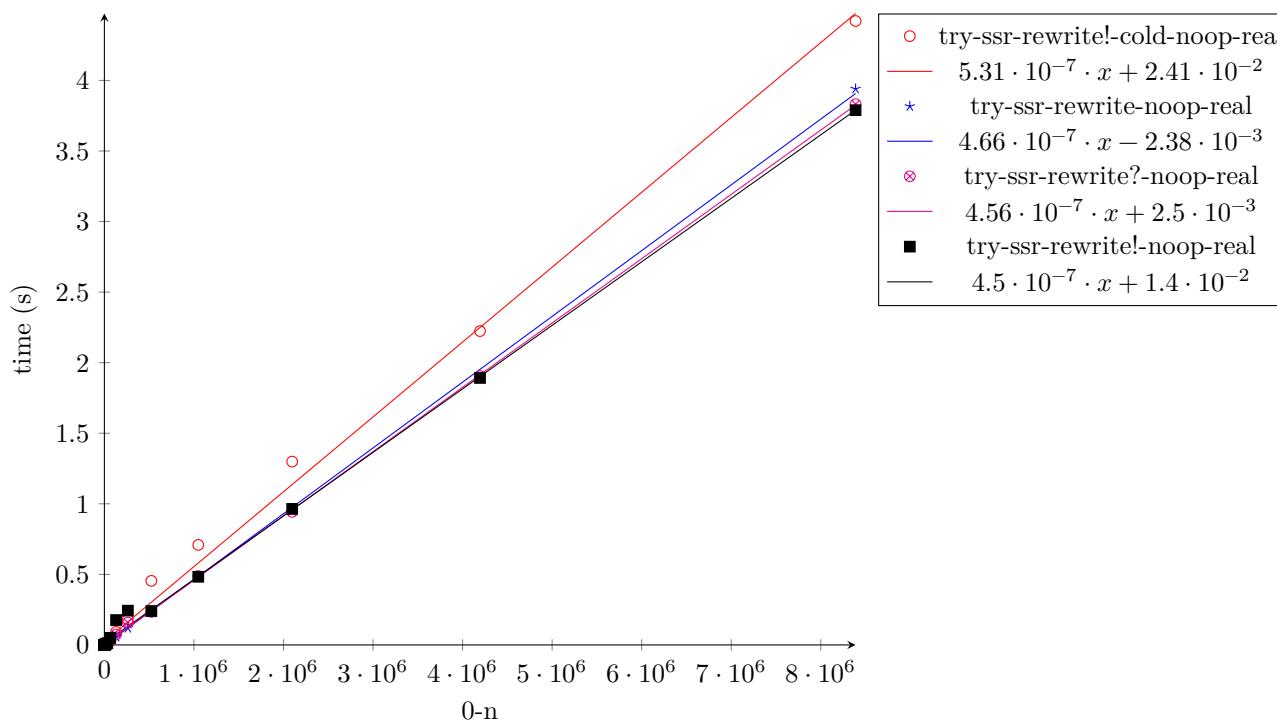


Figure 9: timing-rewrite-repeated-app-ssrrewrite-noop param-1-lgn 1

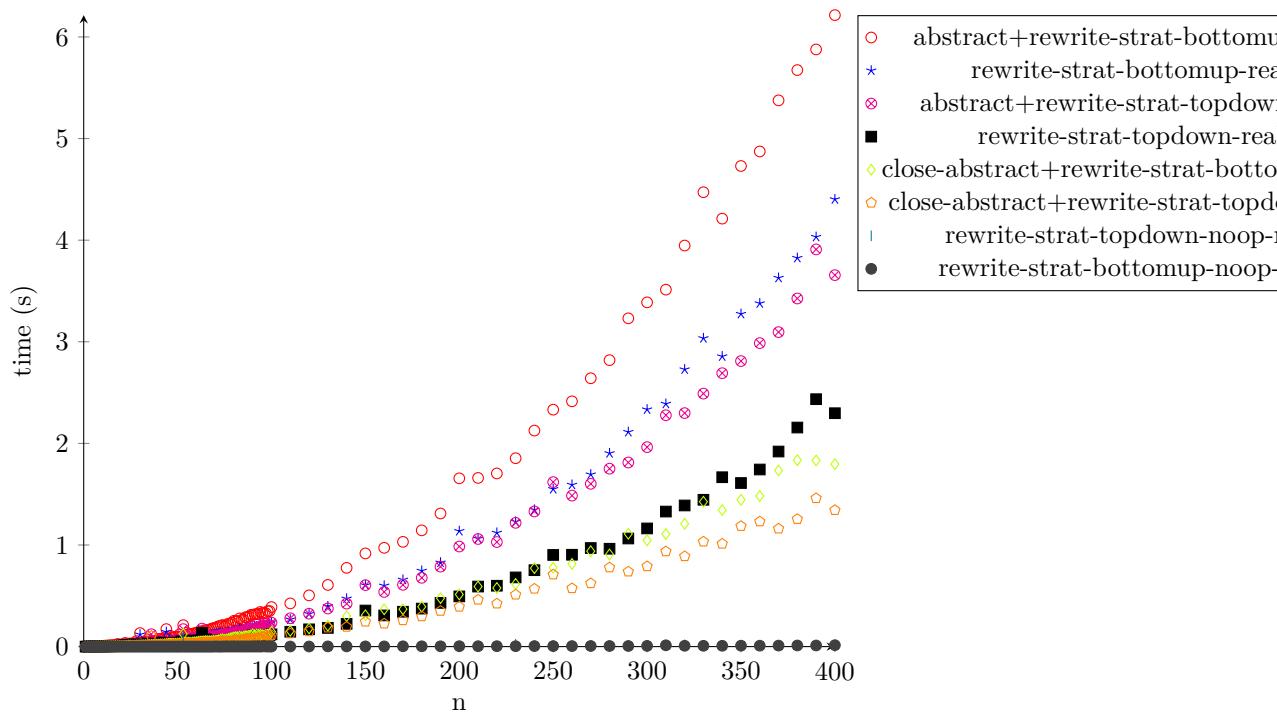


Figure 10: timing-rewrite-repeated-app-rewrite-strat

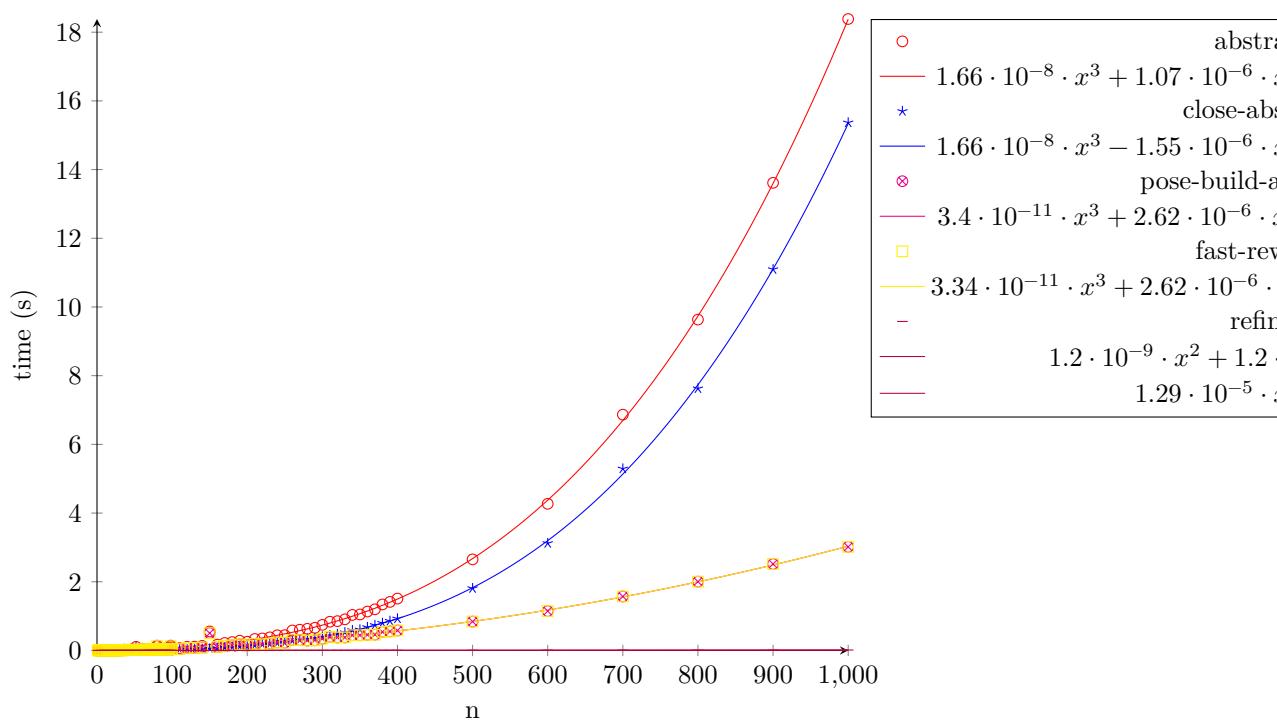


Figure 11: timing-rewrite-repeated-app-fast-rewrite

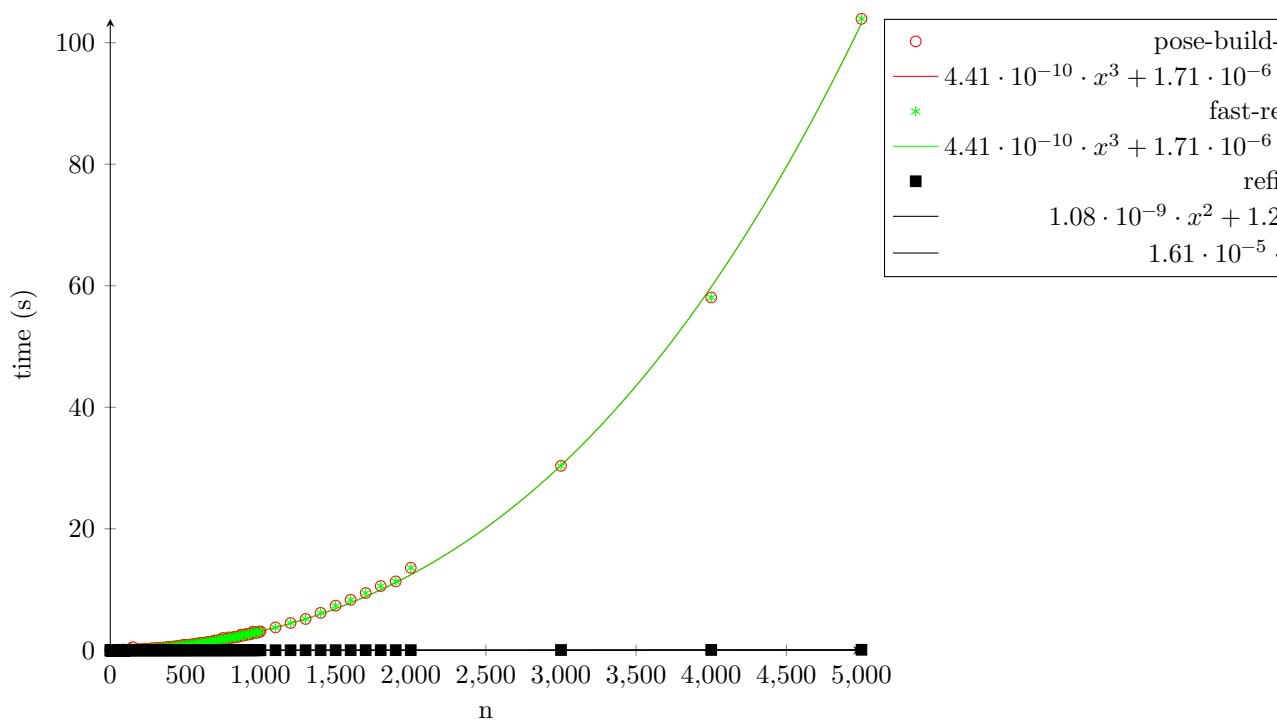


Figure 12: timing-rewrite-repeated-app-fast-rewrite-no-abstract

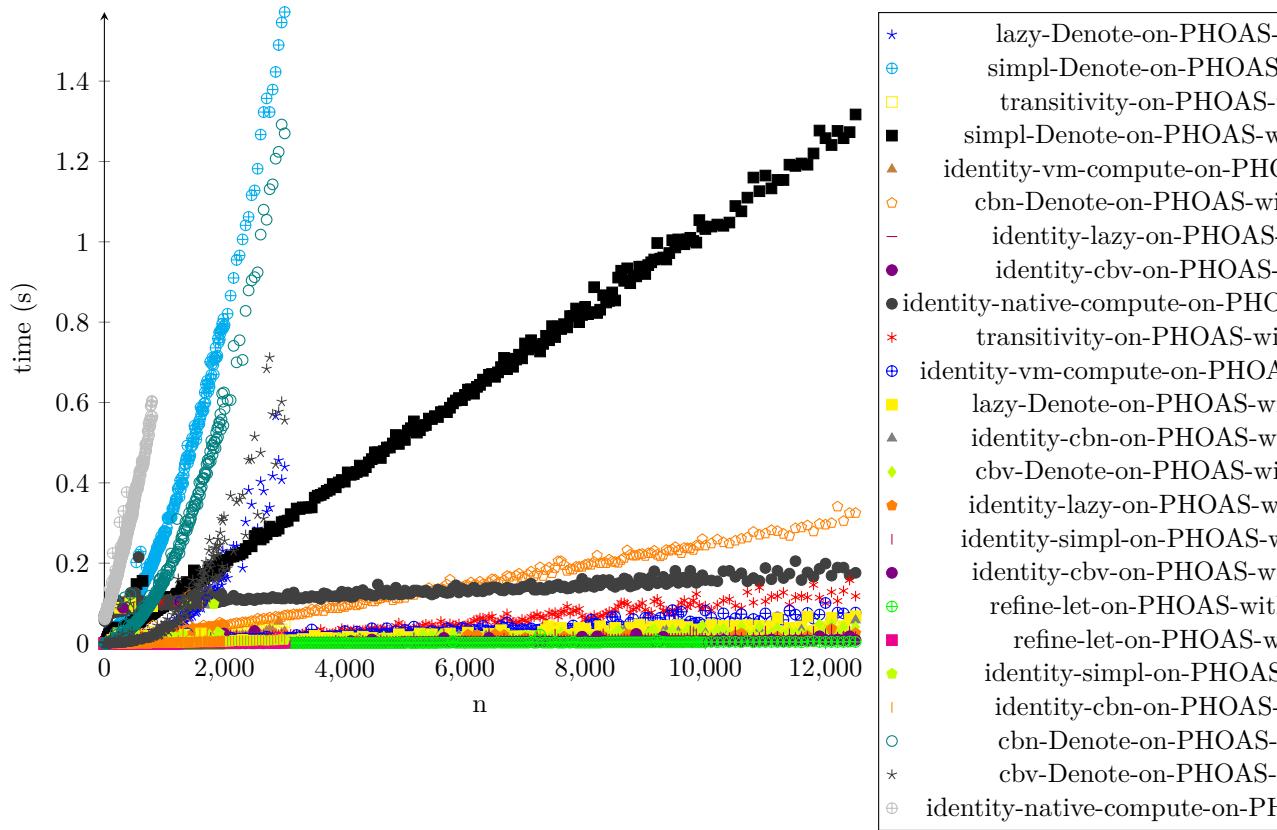


Figure 13: timing-Reify/BaselineStats

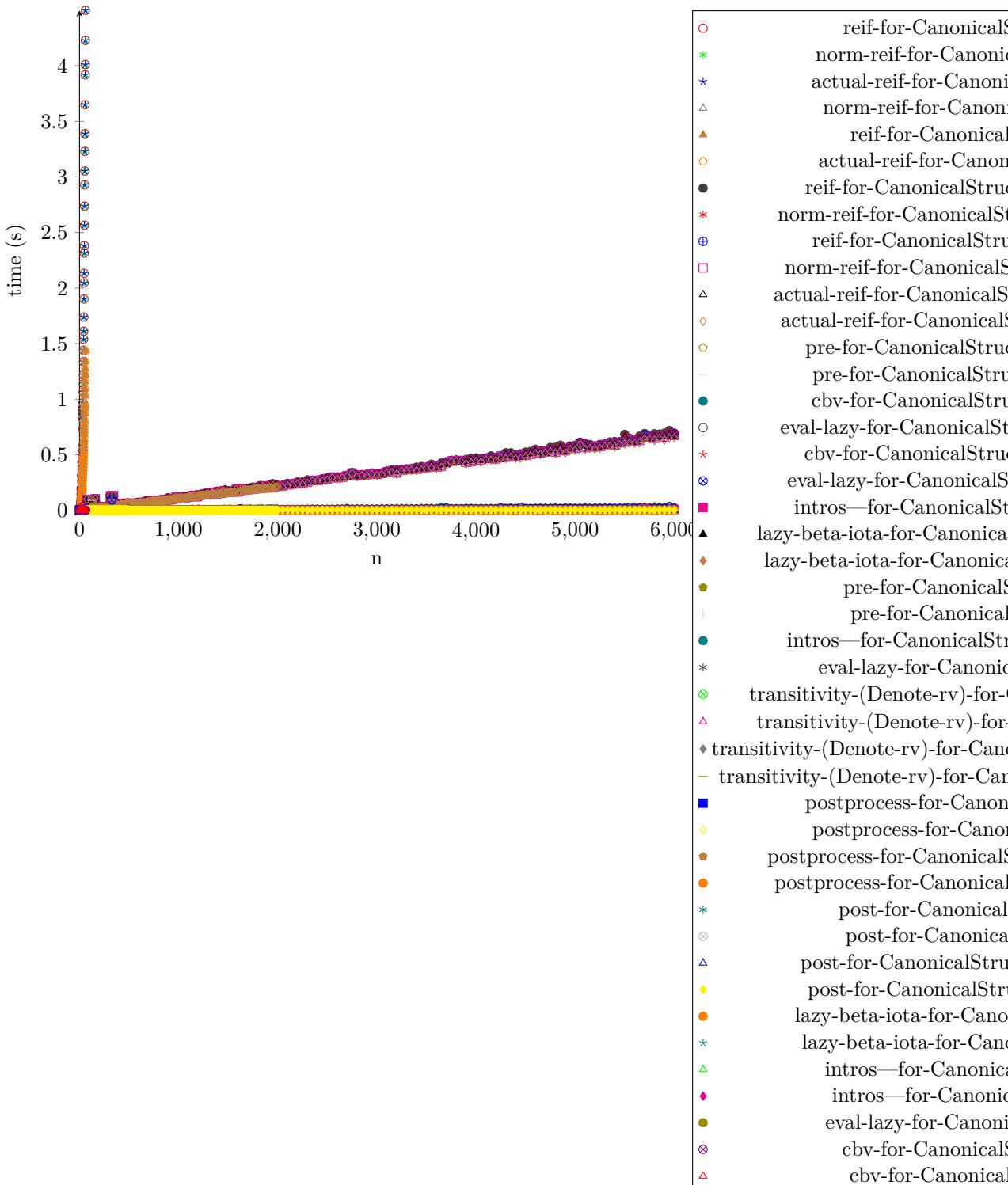


Figure 14: timing-Reify<sup>14</sup>/CanonicalStructures



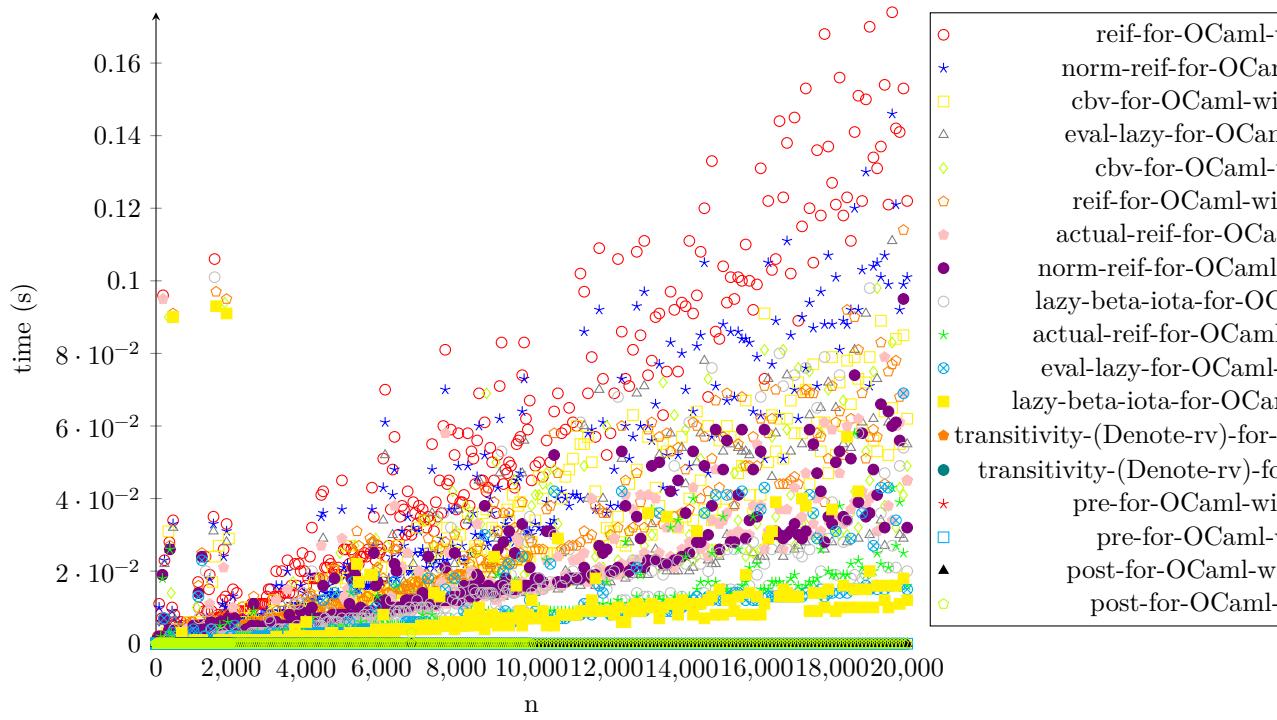
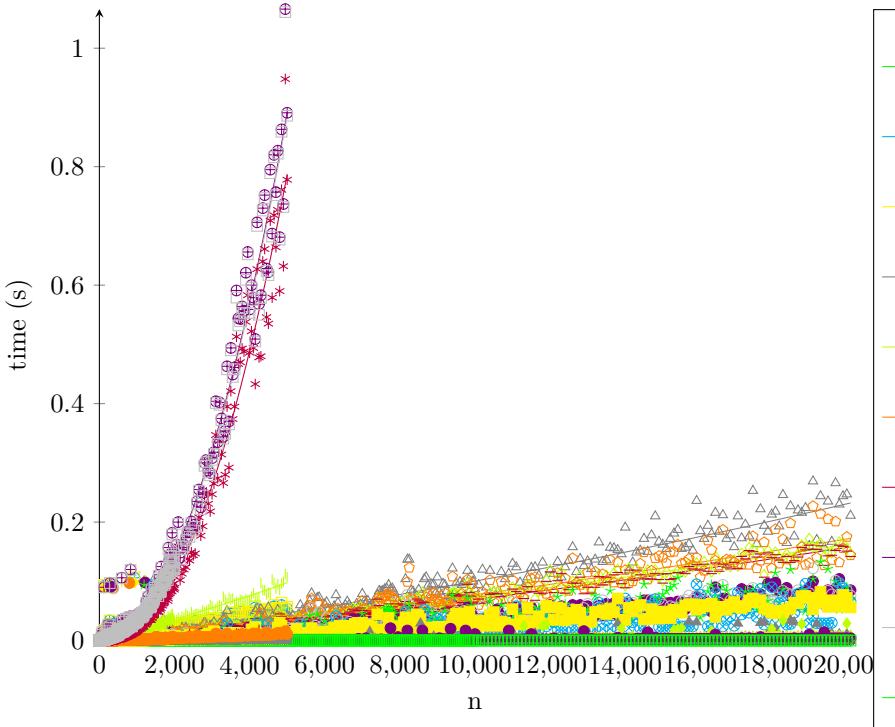


Figure 16: timing-Reify/OCaml



actual-reif-for-beta-Parametrization

$$1.92 \cdot 10^{-10} \cdot x^2 + 9$$

norm-reif-for-beta-Parametrization

$$1.78 \cdot 10^{-10} \cdot x^2 + 9$$

reif-for-beta-Parametrization

$$1.84 \cdot 10^{-10} \cdot x^2 + 1$$

reif-for-Parametrization

$$1.62 \cdot 10^{-10} \cdot x^2 + 8$$

reif-for-Parametricity

$$8.86 \cdot 10^{-11} \cdot x^2 + 6$$

norm-reif-for-Parametricity

$$9.16 \cdot 10^{-11} \cdot x^2 + 6$$

norm-reif-for-Parametricity

$$9.74 \cdot 10^{-11} \cdot x^2 + 5$$

actual-reif-for-Parametricity

$$6.53 \cdot 10^{-11} \cdot x^2 + 3$$

actual-reif-for-Parametricity

$$4.61 \cdot 10^{-11} \cdot x^2 + 3$$

eval-lazy-for-Parametricity

$$4.6 \cdot 10^{-11} \cdot x^2 + 3$$

lazy-beta-iota-for-Parametricity

$$7.23 \cdot 10^{-11} \cdot x^2 + 1$$

eval-lazy-for-Parametricity

$$3.3 \cdot 10^{-11} \cdot x^2 + 2$$

cbv-for-Parametricity

$$2.32 \cdot 10^{-11} \cdot x^2 + 1$$

cbv-for-Parametricity

$$1.44 \cdot 10^{-11} \cdot x^2 + 2$$

cbv-for-beta-Parametrization

$$6.89 \cdot 10^{-11} \cdot x^2 + 1$$

lazy-beta-iota-for-beta-Parametrization

$$2.38 \cdot 10^{-12} \cdot x^2 + 1$$

lazy-beta-iota-for-Parametrization

$$-5.16 \cdot 10^{-12} \cdot x^2 + 1$$

transitivity-(Denote-rv)-for-beta-Parametrization

$$-5.16 \cdot 10^{-12} \cdot x^2 + 1$$

pre-for-beta-Parametrization

$$-5.16 \cdot 10^{-12} \cdot x^2 + 1$$

pre-for-beta-Parametrization

$$-5.16 \cdot 10^{-12} \cdot x^2 + 1$$

pre-for-Parametrization

$$1.48 \cdot 10^{-12} \cdot x^2 - 7$$

pre-for-Parametrization

$$1.48 \cdot 10^{-12} \cdot x^2 - 7$$

pre-for-Parametrization

$$1.48 \cdot 10^{-12} \cdot x^2 - 7$$

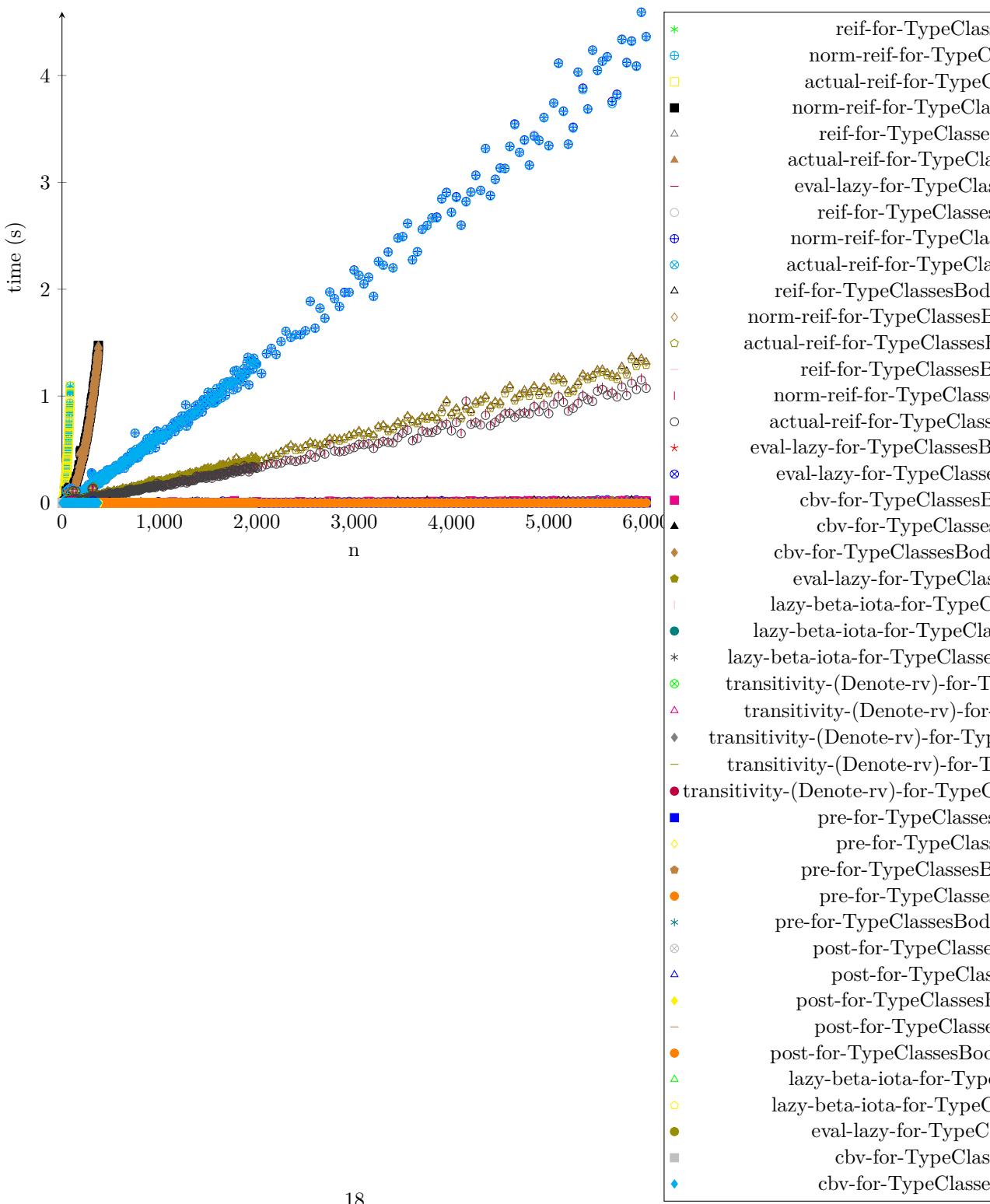


Figure 18: timing-Reify/TypeClasses

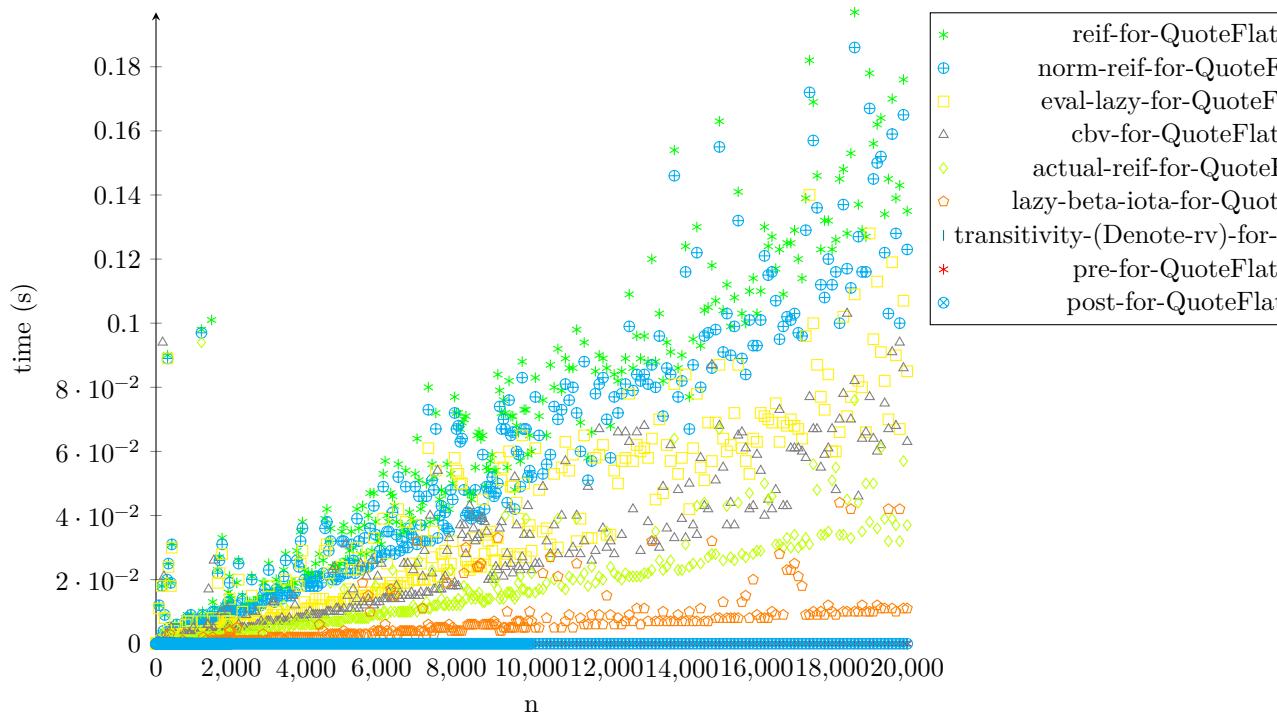


Figure 19: timing-Reify/QuoteFlat