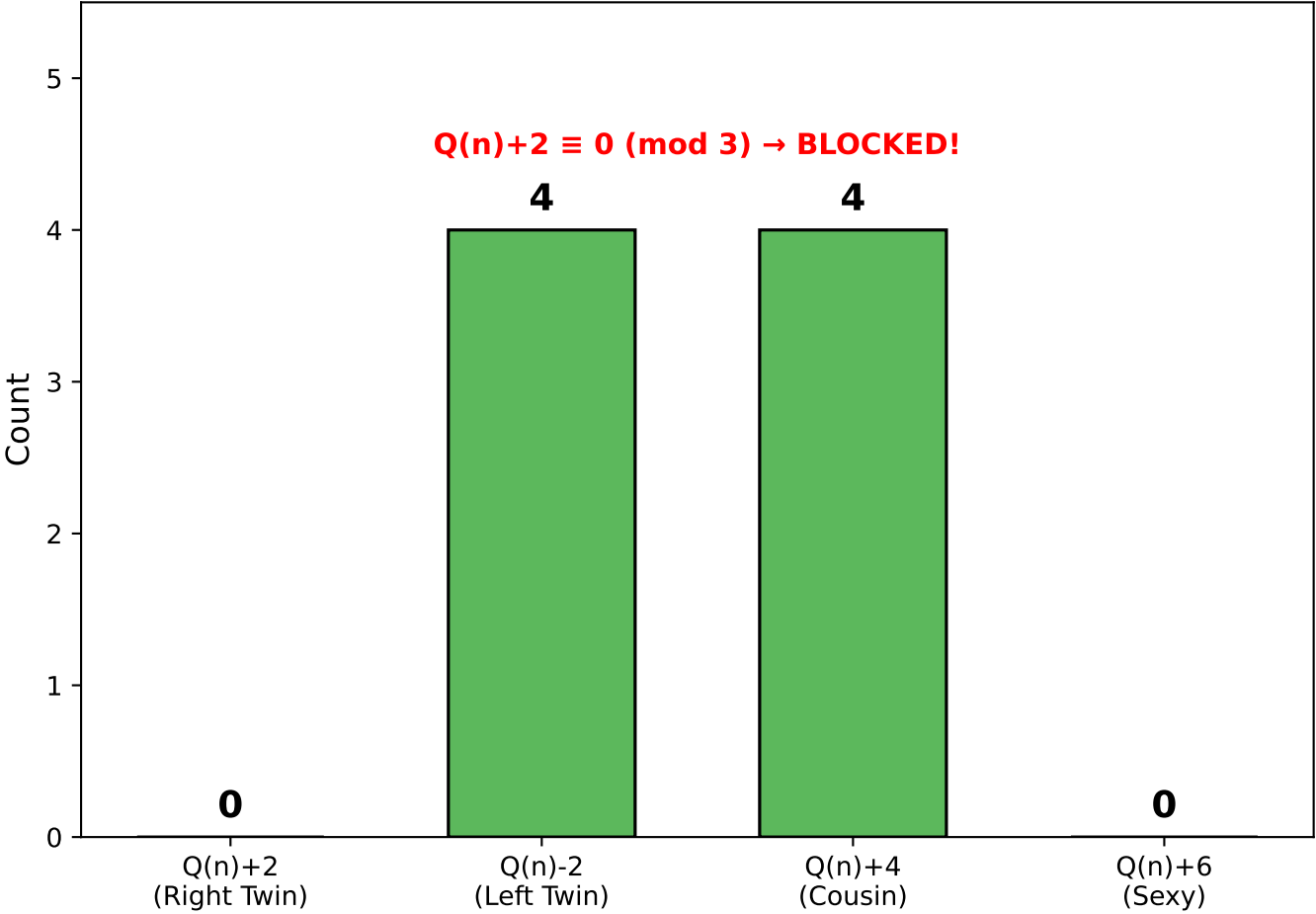
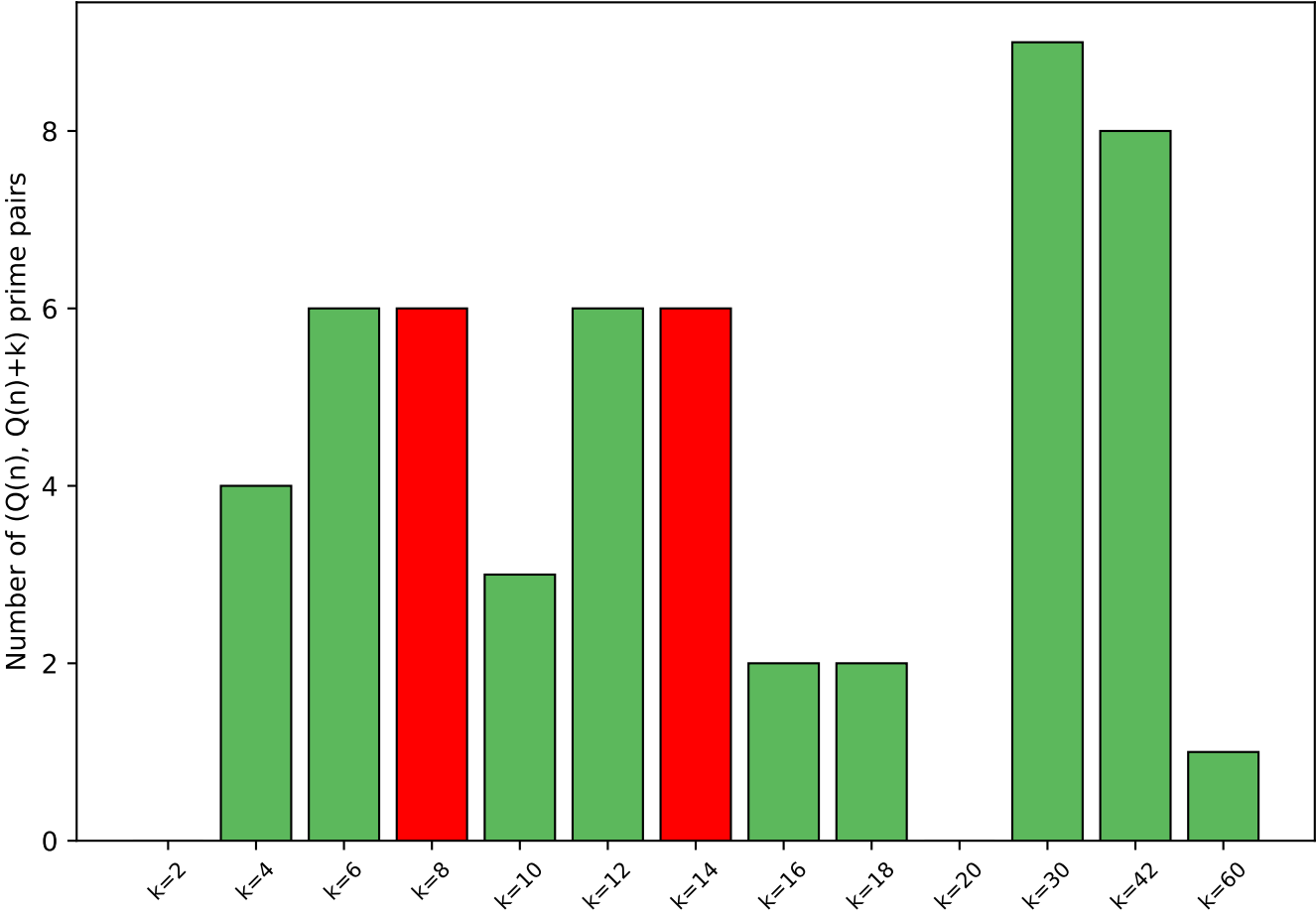


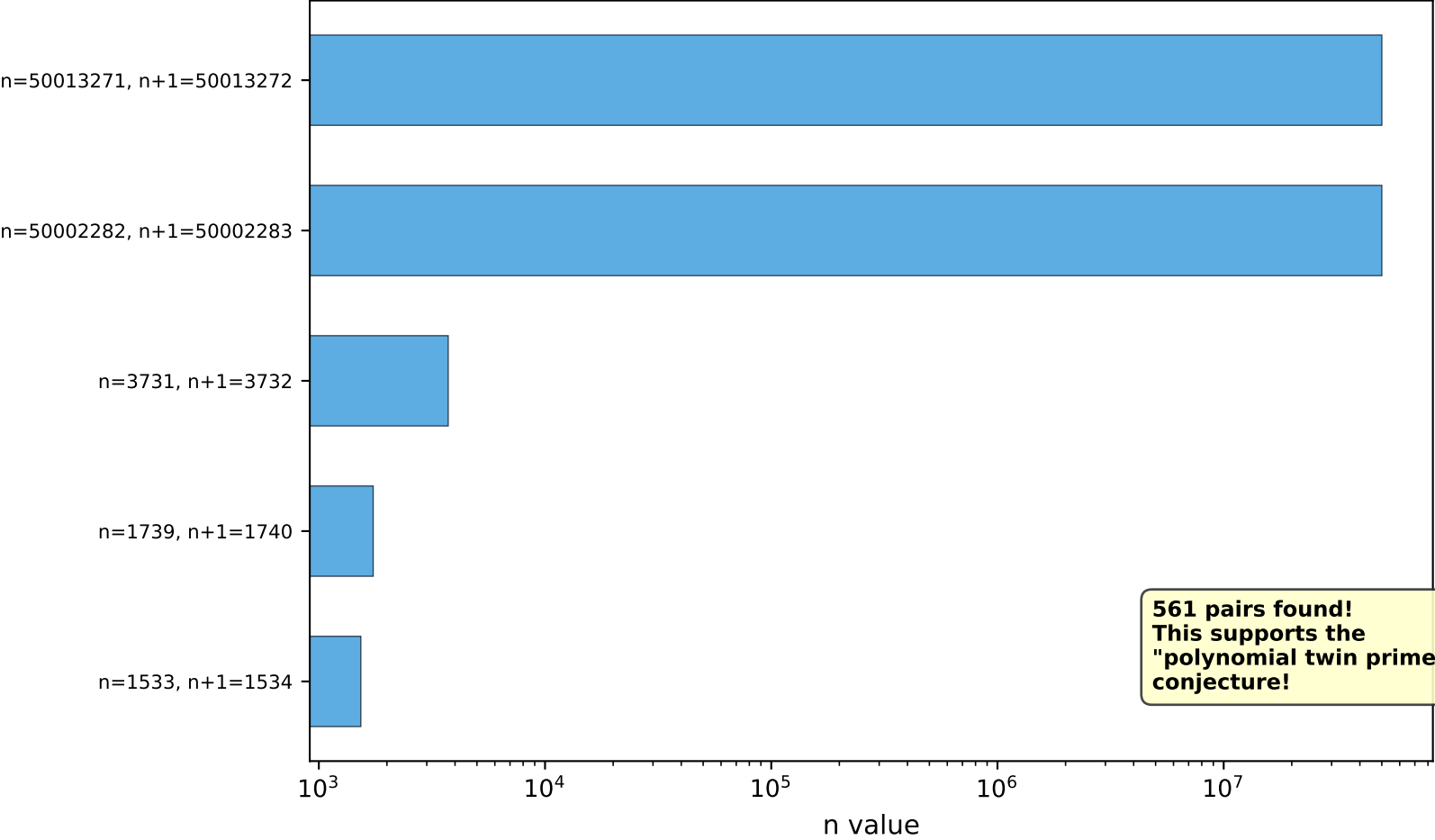
Twin Prime Structure of Q(n)
"Arithmetic Resonance" Exclusion Principle



Gap Distribution: mod 3 Compatible vs Blocked
(Green=Compatible, Red=Blocked by mod 3)



Consecutive n Pairs where Q(n) and Q(n+1) are BOTH Prime
Total Found: 561 pairs!



561 pairs found!
This supports the
"polynomial twin prime"
conjecture!

$Q(n) = n^{4.7} - (n-1)^{4.7}$ TWIN PRIME ANALYSIS

Based on Zhang Yitang / Terence Tao
Bounded Gap Theory

THEOREM 1: Right Twin Exclusion

For all $n \geq 2$: $(Q(n), Q(n)+2)$ cannot be prime.

PROOF: $Q(n) \equiv 1 \pmod{3}$
 $\Rightarrow Q(n)+2 \equiv 0 \pmod{3}$
 $\Rightarrow Q(n)+2$ is divisible by 3 QED

OBSERVATION 1: Left Twins Exist

Found 4 cases where $Q(n)-2$ is prime.
(No mod 3 obstruction since $Q(n)-2 \equiv 2 \pmod{3}$)

OBSERVATION 2: Consecutive n Pairs

Found 561 pairs $(n, n+1)$ where $Q(n)$ and $Q(n+1)$ both prime!
This is strong evidence for a "polynomial twin prime conjecture"

CONJECTURE: Infinitely many n exist such that $Q(n)$ and $Q(n+1)$ are both prime.

BATEMAN-HORN FACTOR

$\omega(p) = 0$ for all small primes p
 $(Q(n) \text{ never } \equiv 0 \pmod{p} \text{ for } p < 283)$
 $\Rightarrow C_Q \approx 8.70$ (very high prime density!)