# Four conjectures on the numbers obtained concatenating to the right a prime with the digit 9

**Abstract.** In this paper I state the following four conjectures: (I) There exist an infinity of primes p which, concatenated to the right with the digit 9, form also prime numbers; (II) There exist an infinity of primes obtained concatenating the reversal of p as is defined in Conjecture I to the right with the digit 9; (III) There exist an infinity of semiprimes obtained concatenating primes to the right with the digit 9, semiprimes m*n having the property that n – m + 1 is prime; (IV) There exist an infinity of semiprimes obtained concatenating the reversal of p as is defined in Conjecture I to the right with the digit 9, semiprimes m*n having the property that n – m + 1 is prime.

**Conjecture I:**

There exist an infinity of primes p which, concatenated to the right with the digit 9, form also prime numbers q.

The sequence of primes q:

: 59, 79, 139, 179, 199, 239, 379, 419, 439, 479, 599, 619, 719, 739, 839, 1019, 1039, 1279, 1319, 1399, 1499, 1579, 1979, 1999, 2239, 2339, 2399, 2579, 2699, 2719, 2819, 2939, 3079, 3119, 3319, 3499, 3539, 3739, 4019, 4099, 4219 (...)

**Conjecture II:**

There exist an infinity of primes r obtained concatenating the reversal of p as is defined in Conjecture I to the right with the digit 9.

The sequence of primes q:

: 719, 919, 739, 149, 349, 179, 379, 389, 1019, 3019, 7219, 1319, 9319, 9419, 7919, 3229, 3329, 7529, 9629, 3929, 7039, 9439, 3539, 3739, 1049, 9049, 1249 (...)

**Conjecture III:**

There exist an infinity of semiprimes obtained concatenating primes to the right with the digit 9, semiprimes m*n having the property that n – m + 1 is prime.

The sequence of semiprimes m*n:

: 119 (= 7*17 and 17 – 7 + 1 = 11, prime), 299 (= 13*23 and 23 – 13 + 1 = 11, prime), 319 (= 11*29 and 29 – 11 + 1 = 19, prime), 799 (= 17*47 and 47 – 17 + 1 = 31, prime), 899 (= 29*31 and 31 – 29 + 1 = 3, prime), 979 (= 11*89 and 89 – 11 + 1 = 79, prime), 1079 (= 13*83 and 83 – 13 + 1 = 73, prime), 1099 (= 7*157 and 157 – 7 + 1 = 151, prime), 1379 (= 7*197 and 197 – 7 + 1 = 191, prime), 1639 (= 11*149 and 149 – 11 + 1 = 139, prime), 1739 (= 37*47 and 47 – 37 + 1 = 11, prime), 1799 (= 7*257 and 257 – 7 + 1 = 251, prime), 1919 (= 19*101 and 101 – 19 + 1 = 83, prime), 1939 (= 7*277 and 277 – 7 + 1 = 271, prime), 2119 (= 13*163 and 163 – 13 + 1 = 151, prime), 2279 (= 43*53 and 53 – 43 + 1 = 11, prime), 2419 (= 41*59 and 59 – 41 + 1 = 19, prime), 2839 (= 17*167 and 167 – 17 + 1 = 151, prime), 3139 (= 43*73 and 73 – 43 + 1 = 31, prime), 3379 (= 31*109 and 109 – 31 + 1 = 79, prime), 3599 (= 59*61 and 61 – 59 + 1 = 3, prime), 3679 (= 13*283 and 283 – 13 + 1 = 271, prime), 3799 (= 29*131 and 131 – 29 + 1 = 103, prime), 3979 (= 23*173 and 173 – 23 + 1 = 151, prime)...

**Conjecture IV:**

There exist an infinity of semiprimes m*n obtained concatenating the reversal of p as is defined in Conjecture I to the right with the digit 9, semiprimes having the property that n – m + 1 is prime.

The sequence of semiprimes m*n:

: 319 (= 11*29 and 29 – 11 + 1 = 19, prime), 329 (= 7*47 and 47 – 7 + 1 = 41, prime), 749 (= 7*107 and 107 – 7 + 1 = 101, prime), 959 (= 7*137 and 137 – 7 + 1 = 131, prime), 7519 (= 73*103 and 103 – 73 + 1 = 31, prime), 1829 (= 31*59 and 59 – 31 + 1 = 29, prime)...