Conjecture on a set of primes obtained by a formula involving reversible primes and concatenation

Abstract. In this paper I make the following conjecture: there exist an infinity of primes q = 2*n – 1, where n is the sum of a reversible prime p of the form 6*k + 1 concatenated to the left with 1 and its reversal, also concatenated to the left with 1 (example: for p = 13, n = 113 + 131 = 244 and q = 244*2 – 1 = 487, prime).

Conjecture:

There exist an infinity of primes q = 2*n – 1, where n is the sum of a reversible prime p of the form 6*k + 1 concatenated to the left with 1 and its reversal, also concatenated to the left with 1 (example: for p = 13, n = 113 + 131 = 244 and q = 244*2 – 1 = 487, prime).

The sequence of reversible primes (A007500 in OEIS):

: 2, 3, 5, 7, 11, 13, 17, 31, 37, 71, 73, 79, 97, 101, 107, 113, 131, 149, 151, 157, 167, 179, 181, 191, 199, 311, 313, 337, 347, 353, 359, 373, 383, 389, 701, 709, 727, 733, 739, 743, 751, 757, 761, 769, 787, 797, 907, 919, 929, 937, 941, 953, 967, 971, 983, 991, 1009, 1021 (...)

The sequence of the primes q:

: for p = 7, n = 17 + 17 = 34 and q = 67;
: for p = 13, n = 113 + 131 = 244 and q = 487;
: for p = 37, n = 137 + 173 = 310 and q = 619;
: for p = 79, n = 179 + 197 = 376 and q = 751;
: for p = 151, n = 1151 + 1151 = 2302 and q = 4603;

[note the chain of five primes obtained for five consecutive reversible primes of the form 6*k + 1]

: for p = 181, n = 1181 + 1181 = 2362 and q = 4723;
: for p = 199, n = 1199 + 1991 = 3190 and q = 6379;
: for p = 727, n = 1727 + 1727 = 3454 and q = 6907;
: for p = 739, n = 1739 + 1937 = 3676 and q = 7351;
: for p = 757, n = 1757 + 1757 = 3514 and q = 7027;
: for p = 1231, n = 11231 + 11321 = 24442, q = 48883;
: for p = 1249, n = 11249 + 19421 = 30670, q = 61339;

[an interesting number, though not prime, is obtained for p = 1381: (11381 + 11831)*2 – 1 = 43*1381]

```
:    for p = 1399, n = 11399 + 19931 = 31330,  q = 62659;
:    for p = 1429, n = 11429 + 19241 = 30670,  q = 61339;
:    for p = 1669, n = 11669 + 19661 = 31330,  q = 62659;

     [note that for p = 1399 and p = 1669 we have the
     same value of q, i.e. 62659]

:    for p = 1753, n = 11753 + 13571 = 25324,  q = 50647;
:    for p = 1933, n = 11933 + 13391 = 25324,  q = 50647;

     [note that for p = 1753 and p = 1933 we have the
     same value of q, i.e. 50647]

:    for p = 3067, n = 11933 + 13391 = 30670,  q = 61339;

     [note that for p = 1429 and p = 3067 we have the
     same value of q, i.e. 61339]

:    for p = 3163, n = 13163 + 13613 = 26776,  q = 53551;
:    for p = 3169, n = 13169 + 19613 = 32782,  q = 65563;
:    for p = 3343, n = 13343 + 13433 = 26776,  q = 53551;

     [note that for p = 3163 and p = 3343 we have the
     same value of q, i.e. 53551]

     (...)
```