Conjecture that there is no a square of an odd number to be as well Lychrel number

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Abstract. In this paper I make the following two conjectures: (I) There exist an infinity of squares of odd numbers n^2 such that n^2 + R(n^2), where R(n^2) is the number obtained reversing the digits of n^2, is a palindromic number; (II) There is no a square of an odd number to be as well Lychrel number. Note that a Lychrel number is a natural number that cannot form a palindrome through the iterative process of repeatedly reversing its digits and adding the resulting numbers (process sometimes called the 196-algorithm, 196 being the smallest such number) – see the sequence A023108 in OEIS.

Conjecture I:

There exist an infinity of squares of odd numbers n^2 such that n^2 + R(n^2), where R(n^2) is the number obtained reversing the digits of n^2, is a palindromic number.

The sequence of these squares of odd numbers:

: 1^2 = 1 (+ 1 = 2);
: 5^2 = 25 (+ 52 = 77);
: 9^2 = 81 (+ 18 = 99);
: 11^2 = 121 (+ 121 = 242);
: 15^2 = 225 (+ 522 = 747);
: 21^2 = 441 (+ 144 = 585);
: 29^2 = 841 (+ 148 = 989);
: 35^2 = 1225 (+ 5221 = 6446);
: 39^2 = 1521 (+ 1251 = 2772);
: 45^2 = 2025 (+ 5202 = 7227);
: 49^2 = 2401 (+ 1024 = 3443);
: 51^2 = 2601 (+ 1062 = 3663);
: 55^2 = 3025 (+ 5203 = 8228);
: 61^2 = 3721 (+ 1273 = 4994);
: 65^2 = 4225 (+ 5224 = 9449);
: 71^2 = 5041 (+ 1405 = 6446);
: 79^2 = 6241 (+ 1426 = 7667);
: 101^2 = 10201 (+ 10201 = 20402);
: 105^2 = 11025 (+ 52011 = 63036);
: 111^2 = 12321 (+ 12321 = 24642);
: 115^2 = 13225 (+ 52231 = 65456);
(...)

Note that for 21 from the first 60 squares of odd numbers n^2 is true that n^2 + R(n^2) is a palindrome. Note also that in a previous paper I showed that for 15 from the first 60 Poulet numbers P is true that P + R(P) is a palindrome, which attests again the similarity between many of the properties of Poulet numbers with the ones of the squares of odd numbers (I noted this in many of my papers)!

Conjecture II:

There is no a square of an odd number to be as well Lychrel number.

Note that a Lychrel number is a natural number that cannot form a palindrome through the iterative process of repeatedly reversing its digits and adding the resulting numbers (process sometimes called the 196-algorithm, 196 being the smallest such number) – see the sequence A023108 in OEIS.

Note that for 58 from the first 60 squares of odd numbers is obtained a palindrome in no more than six iterations:

: palindromes 99, 484, 1441, 2992, 949, 5995, 2662, 1441, 11011, 5995, 14641, 24442, 9559, 47674, 57475, 37873, 79497, 89298, 57475, 113311, 135531, 50605 are obtained in two iterations from squares of odd numbers 9 (3^2), 49 (7^2), 169 (13^2), 289 (17^2), 361 (19^2), 529 (23^2), 625 (25^2), 961 (31)^2, 1369 (37^2), 1681 (41^2), 1849 (43^2), 2209 (47^2), 3481 (59^2), 4489 (67^2), 5929 (77^2), 7225 (85^2), 7569 (87^2). 8649 (93^2), 9025 (95^2), 10609 (103^2), 13689 (117)6, 14161 (119^2);

: palindromes 79497, 79497, 69696, 112211, 397793 are obtained in three iterations from squares of odd numbers 3249 (57^2), 3969 (63^2), 6561 (81^2), 8281 (91^2), 12769 (113^2);

: palindromes 69696, 79497, 59895, 233332, 79497, 1466641, 79497 are obtained in four iterations from squares of odd numbers 729 (27^2), 1089 (33^2), 4761 (69^2), 5329 (73^2), 5625 (75^2), 9409 (97^2), 9801 (99^2);

: palindromes 439934 are obtained in six iterations from squares of odd numbers 11881 (109^2);

: palindromes 293392, 1564651 are obtained in six iterations from squares of odd numbers 2809 (53^2), 11449 (107^2).