A very exhaustive generalization of de Polignac's conjecture

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Abstract. In a previous paper I made a generalization of de Polignac's conjecture. In this paper I extend that generalization as much as is possible.

Conjecture:

For any n even positive integer and for any i and j non-null positive integers there exist an infinity of distinct sets of i primes p1, p2, ..., pi and also an infinity of distinct sets of j primes q1, q2, ..., qj such that p1*p2*...*pi – q1*q2*...*qj = n.

Case [i, j, n] = [1, 1, 2]:

In this case we have p – q = 2, which gave us the twin primes conjecture.

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Case [i, j, n] = [2, 1, 2]:

In this case we have p1*p2 – q = 2.

Such triplets of primes [p1, p2, q], are: [7, 13, 89], [7, 19, 131], [7, 37, 257]...Note that the conjecture can be further extended in this case to: for any p1 odd prime there exist an infinity of pairs of primes [p2, q] such that p1*p2 – q = 2.

Case [i, j, n] = [1, 2, 2]:

In this case we have p – q1*q2 = 2.

Such triplets of primes [p, q1, q2], are: [79, 11, 7], [163, 23, 7], [331, 47, 7]...Note that the conjecture can be further extended in this case to: for any q1 odd prime there exist an infinity of pairs of primes [p, q2] such that p – q1*q2 = 2.

Conjecture:
(the most exhaustive generalization of de Polignac's conjecture)

For any n even positive integer and for any i, j, k, l non-null positive integers, for any k given primes a1, a2, ..., ak and for any l given primes b1, b2, ..., bl, there exist an infinity of distinct sets of i primes p1, p2, ..., pi and also an infinity of distinct sets of j primes q1, q2, ..., qj such that p1*p2*...*pi*a1*a2*...*ak – q1*q2*...*qj*b1*b2*...bl = n.