Difficulty: 2/4 Interest: 2/4

Let h be the maximum number of penny-to-penny connections on the vertices of a hexagonal lattice, and let $t(n)$ be the analogous sequence on the vertices of a triangular lattice.

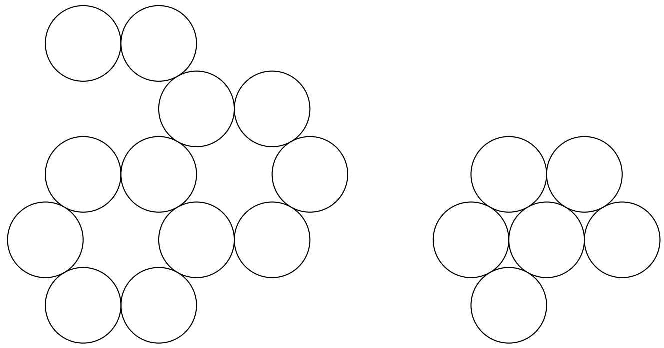

Figure 1: An example for $h(12) = 13$ and $t(6) = 9$

Question. What is a combinatorial proof that $h(2n) - t(n) = A216256(n)$.

Note. A216256 is

$$\underbrace{1}_{1}, \underbrace{2}_{1}, \underbrace{3, 3}_{2}, \underbrace{4, 4, 4}_{3}, \underbrace{5, 5, 5}_{3}, \underbrace{6, 6, 6, 6}_{4}, \underbrace{7, 7, 7, 7, 7}_{5}, \underbrace{8, 8, 8, 8, 8}_{5}, \underbrace{9, 9, 9, 9, 9, 9}_{6}, \ldots$$

Related.

1. `https://oeis.org/A216256`
2. $t(n)$: `https://oeis.org/A047932`
3. $h(n)$: `https://oeis.org/A263135`