Combinatorics of particles requiring more space [pln6]

Consider the second variation of [pln4].
Place N particles into a linear array of N_A orbitals such that any two particles are at least g sites apart, where $g = 0, 1, 2, \ldots$

Number of distinct microstates with N particles:

$$W(N) = \left(\begin{array}{c} d+N-1 \\ N \end{array} \right) = \frac{(d+N-1)!}{N!(d-1)!} \, .$$

Generalized Pauli principle: $d = A - g(N-1)$.
Capacity constant: $A = N_A$.
Statistical interaction coeff.: $g = 0, 1, 2, \ldots$ (cargo, economy, business, first,...)

Maximum capacity of system is reached when $d \to 0$.

Introduce N_B effective orbitals with single occupancy and no need for extra space.

$$W(N) = \left(\begin{array}{c} N_B \\ N \end{array} \right), \quad N_B = A - (g-1)(N-1).$$

Microstates of particles with $g = 2$ for $N_A = 5$ and $N = 0, 1, 2, 3$:

00000
10000 01000 00100 00010 00001
10100 10010 10001 01010 01001 00101
10101

Equivalent microstates for $N_B = 5 - (N-1)$ and $N = 0, 1, 2, 3$:

000000
10000 01000 00100 00010 00001
1100 1010 1001 0110 0101 0011
111