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so that non-adjacent
(even to be interpreted as left odd as right)

Count the number of subsets with 1
and consider 1 as first
1, $2n$ cannot belong to subsets
The rest of $k-1$ are chosen from $2n-3$
arranged in a row so that no two are adjacent

Observations:
$A_1 \cap A_2 = \emptyset$ (M_1 cannot sit both left and right)
$A_2 \cap A_3 = \emptyset$ (W_2's left is taken up by M_1)
$\cdots$

Case 1: $k > n$ then $\omega(k) = 0$. By pigeonhole principle

Case 2: $k \leq n$
$\omega(k) = \Sigma|A_{i_1} \cap \ldots \cap A_{i_k}|$
Equivalent to:
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In bijective correspondence with $k-1$ distinct numbers

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