Identify planar points with complex numbers z_j. Distances become $|z_i - z_j|$, but the dynamic-programming state and proof are unchanged. The structural simplification is the bitonic ordering constraint, which reduces the search to two frontier endpoints. It does not produce an optimum for unrestricted Euclidean travelling-salesperson instances.

Comparative cost and preferred method

There are $\Theta(n^2)$ states. Nonadjacent-endpoint states take constant work; the adjacent-endpoint minima scan at most $j - 2$ choices, whose total is $O(n^2)$. Sorting costs $O(n \log n)$ and is dominated. Storage is $O(n^2)$ with reconstruction pointers, or $O(n)$ for the length alone using suitable frontiers. Enumeration of all assignments to the two chains is exponential. The standard dynamic program is the preferable method; complex coordinates add no speedup.