

This graph is induced by a 3-dimensional permutahedron. Each vertex is in a one-to-one correspondence with a permutation of a 4 element set. In the figure the elements are denoted A , B , C and D and each vertex is labeled with the corresponding permutation. Even permutations are shown with a heavy circle. In the permutahedron each facet is in a one-to-one correspondence with the proper subsets of a 4 element set (the empty set and the whole set excluded). However, the facets cannot be seen in the graph rendering of the permutahedron. Each edge corresponds to switching two adjacent elements in the permutation. The graph is hamiltonian. The circuit is shown in red in the figure. Hence it is possible to list all permutations by simply switching two adjacent elements.