

Diagram illustrating the construction of a 3D representation of a 4D hypercube (tesseract) using a series of 2D projections. The diagram is organized into four rows, each representing a different stage of the construction, with labels indicating the specific 2D planes and the corresponding 4D coordinates.

**Row 1 (Top):** Shows the initial 2D projection of the 4D hypercube. The vertices are labeled with 4D coordinates:  $4-5-6-1-3-2$  (top center),  $4-5$  (top left),  $5-4$  (top right),  $2-1$  (bottom left), and  $2-3$  (bottom right). The edges are labeled with 3D coordinates:  $26DUP-1-6-5-4-3-2$  (top left),  $3-4-5-6-1-2-6-5-4-3-2$  (top right),  $4-5-6-1-3-2$  (bottom left), and  $4-5-6-1-3-2$  (bottom right).

**Row 2:** Shows the 2D projection of the hypercube after a 45-degree rotation. The vertices are labeled with 4D coordinates:  $4-5-6-1-3-2$  (top center),  $4-5$  (top left),  $5-4$  (top right),  $2-1$  (bottom left), and  $2-3$  (bottom right). The edges are labeled with 3D coordinates:  $26DUP-1-6-5-4-3-2$  (top left),  $3-4-5-6-1-2-6-5-4-3-2$  (top right),  $4-5-6-1-3-2$  (bottom left), and  $4-5-6-1-3-2$  (bottom right).

**Row 3:** Shows the 2D projection of the hypercube after a 90-degree rotation. The vertices are labeled with 4D coordinates:  $4-5-6-1-3-2$  (top center),  $4-5$  (top left),  $5-4$  (top right),  $2-1$  (bottom left), and  $2-3$  (bottom right). The edges are labeled with 3D coordinates:  $26DUP-1-6-5-4-3-2$  (top left),  $3-4-5-6-1-2-6-5-4-3-2$  (top right),  $4-5-6-1-3-2$  (bottom left), and  $4-5-6-1-3-2$  (bottom right).

**Row 4 (Bottom):** Shows the 2D projection of the hypercube after a 135-degree rotation. The vertices are labeled with 4D coordinates:  $4-5-6-1-3-2$  (top center),  $4-5$  (top left),  $5-4$  (top right),  $2-1$  (bottom left), and  $2-3$  (bottom right). The edges are labeled with 3D coordinates:  $26DUP-1-6-5-4-3-2$  (top left),  $3-4-5-6-1-2-6-5-4-3-2$  (top right),  $4-5-6-1-3-2$  (bottom left), and  $4-5-6-1-3-2$  (bottom right).

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