The join of two sets $P$, $Q \subset \Re^n$ is the set $PQ = \{\gamma p + \lambda q,\ p \in P, q \in Q\}$, where $\gamma$, $\lambda \in \Re$, $\gamma$, $\lambda \geq 0$, and $\gamma + \lambda = 1$. The join operation is associative and commutative. A simplex $\sigma \subset \Re^n$ of order $d$, or $d$-simplex, is the join of $d + 1$ affinely independent points, called vertices. The $n + 1$ points $p_0, \ldots, p_n$ are affinely independent when the $n$ vectors $\boldsymbol{p}_1 - \boldsymbol{p}_0, \ldots, \boldsymbol{p}_n - \boldsymbol{p}_0$ are linearly independent. A $d$-simplex can be seen as a $d$-dimensional triangle: 0-simplex is a point, 1-simplex is a segment, 2-simplex is a triangle, 3-simplex is a tetrahedron, and so on. Any subset of $s + 1$ vertices ($0 \leq s \leq d$) of a $d$-simplex $\sigma$ defines an $s$-simplex, which is called $s$-face of $\sigma$.