Abstract

Double, double toil and trouble

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To achieve access balancing for distributed storage systems, both the points and blocks of a design are linearly ordered, computing each *point sum* as the sum of the indices of blocks containing that point and each *block sum* as the sum of the indices of points contained in that block. Popularity block (point) ordering asks for the point (resp., block) sums to be as equal as possible. In this talk, we discuss popularity orderings for Steiner quadruple systems ($S(3, 4, v)$ designs). First we observe that a well-known doubling construction establishes bounds on block sums of SQSs. Then we adapt the doubling construction to yield bounds on point sums that provide optimal popularity block orderings for $SQS(v)$s whenever $v \equiv 4, 8 \pmod{12}$ and $v > 8$.