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Construction of Covering Arrays from Interleaved Sequences

A covering array CA$(N; t, k, v)$ is an $N \times k$ array over an alphabet of v elements such that for any t-set of columns, each possible arrangement of t alphabet elements occurs at least once in a row. Finding the smallest number of rows N is a central problem. We will examine interleaved sequences, created by combining a base sequence with desirable coverage properties with a shift sequence. We show what properties are inherited from the base sequence, and by which shift sequences. Finally, we demonstrate the potential for interleaved sequences to create ϵ-almost covering arrays.