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Covering arrays avoiding forbidden edges

Covering arrays avoiding forbidden edges (CAFEs) are combinatorial designs, useful for generating test suites so that all required interactions between pairs of components is covered in some test, while a specified list of forbidden interactions is avoided by all tests. We review important results on CAFEs, including their relations to edge clique covers, and computational complexities. We also give a new model which takes into consideration optional interactions, as well as forbidden and required interactions.