

On the Optimal Configuration of a Square Array Group Testing Algorithm

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Abstract

Up to date, only lower and upper bounds for the optimal configuration of a Square Array (A2) Group Testing (GT) algorithm are known [HK11]. We establish exact analytical formulae and provide a couple of applications of our result. First, we compare the A2 GT scheme to several other classical GT schemes in terms of the gain per specimen attained at optimal configuration. Second, operating under objective Bayesian framework with the loss designed to attain minimum at optimal GT configuration, we suggest the preferred choice of the group size under natural minimal assumptions: the prior information regarding the prevalence suggests that grouping and application of A2 is better than individual testing.

References

- [HK11] Michael G. Hudgens and Hae-Young Kim. Optimal Configuration of a Square Array Group Testing Algorithm. *Communications in Statistics - Theory and Methods*, 40(3):436–448, January 2011.

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