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Adding points to D-optimal designs

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One of the main criticisms to the optimal experimental design theory is that optimal designs tend to require too few points, frequently very extremal. In most of the models with one variable the number of different points reduces to the number of parameters to be estimated. Actually, an optimal design is used as a reference to measure how efficient are the designs used in practice. In this paper the equivalence theorem is used to control the efficiency when new points are added to a given design. This given design may be the optimal design itself, a design already used or a design given in some protocol. With the theoretical results obtained a friendly code has been developed in order to help the user to choose the points to be added. Thus, the user may choose the design of reference and the proportion of new points to be added. Then the software offers the range of possible efficiencies available with these constraints. Finally the user chooses one efficiency value within that range and the software shows the region where the practitioner can choose the points to be added.

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