

Supplementary materials for state dependent swap strategies and automatic reduction of number of temperatures in Adaptive Parallel Tempering algorithm.

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Detecting multimodality

One of the simplest way to detect multimodality in the high dimensional setting would be to inspect lower dimensional projections visually. Such procedure could be misleading, as one can see in the toy example below.

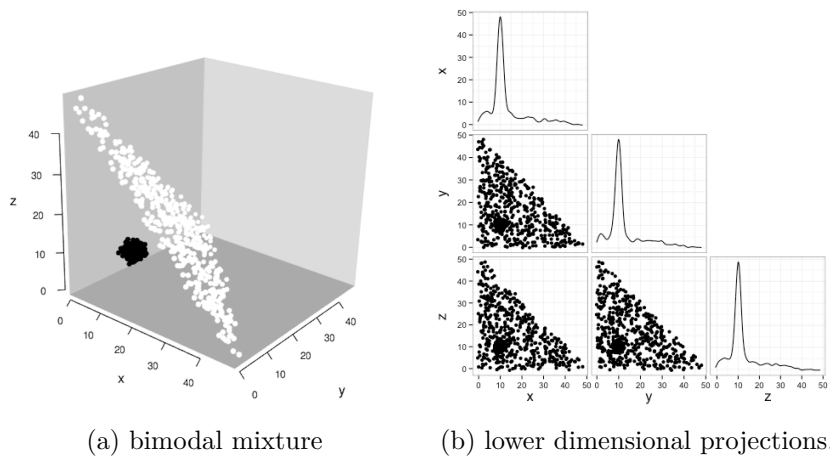


Figure 1: We consider a mixture of two probability distributions: one on a product of simplex and interval and another one on a ball just below the simplex. In this case we cannot distinguish from the lower dimensional projections the separation of the two modes. From the projections one could infer that the overall distribution is unimodal.