Title:
Detecting Simultaneous Change-Points in Multiple Sequences

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Abstract:

We discuss the problem of simultaneous detection of recurrent change-points in multiple sequences, with particular attention to relatively short variant intervals that may occur in only a fraction of the sequences. We propose statistics that combine data across sequences and show that they have better power properties and provide a more easily interpretable summary of the data than do procedures based on a separate change-point analysis for each sequence. The formulation of the model is motivated by the problem of detecting recurrent DNA copy number variants in multiple samples, and our results are illustrated by applications to two datasets of DNA copy number changes.