MCMC inference for qPCR quantitation via branching processes

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1 Overview

The technology called the Quantitative Polymerase Chain Reaction (qPCR) is commonly used in experiments to measure the difference in gene expression between subjects exposed to different treatments or conditions. Because DNA particles are too tiny and too few to count directly, qPCR amplifies the particles via repeated iterations of the polymerase reaction. Then the amplified particles are counted and used for inference about the original particles.

Classical inference about qPCR experiments has made some untenable assumptions, such as that each partice of DNA replicates during each iteration of the polymerase reaction. [1]

2 Scope of the project

References

[1] Bret Hanlon and Anand N. Vidyashankar. Inference for quantitation parameters in polymerase chain reactions via branching processes with random effects. *Journal of the American Statistical Association*, 2012.