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## Statistics > Methodology

# Monte Carlo algorithms for model assessment via conflicting summaries

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*(Submitted on 29 Jun 2011)*

The development of statistical methods and numerical algorithms for model choice is vital to many real-world applications. In practice, the ABC approach can be instrumental for sequential model design; however, the theoretical basis of its use has been questioned. We present a measure-theoretic framework for using the ABC error towards model choice and describe how easily existing rejection, Metropolis-Hastings and sequential importance sampling ABC algorithms are extended for the purpose of model checking. Considering a panel of applications from evolutionary biology to dynamic systems, we discuss the choice of summaries which differs from standard ABC approaches. The methods and algorithms presented here may provide the workhorse machinery for an exploratory approach to ABC model choice, particularly as the application of standard Bayesian tools can prove impossible.

**Submission history**

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