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**New coins from old, smoothly.** (English) Zbl 1238.41007  
Constr. Approx. 33, No. 3, 331-363 (2011).

Given a coin with unknown probability of heads  $p$ , as well as a fair coin, the authors would like to simulate a coin with probability of heads  $f(p)$ , where  $f : [0, 1] \rightarrow (0, 1)$  is a known function. First, the authors define the simulation rate for a simulation algorithm. Next, they recall some basic results regarding Bernstein polynomials, Bernstein basis, Bernstein coefficients, Bernstein-positive consistent approximation from below, Bernstein-positive consistent approximation from above. The relationship between Bernstein-positive approximation and smoothness is then established. Next, Lorentz operators and simultaneous approximation are examined. An iterative construction of Bernstein-positive consistent approximations schemes is very clean presented. Finally, the authors prove that *G. G. Lorentz's Claim 10* [Math. Ann. 151, 239–251 (1963; Zbl 0116.04602)] is invalid.

Reviewer: [Dan Bărbosu \(Baia Mare\)](#)

**MSC:**

[41A10](#) Approximation by polynomials  
[41A25](#) Rate of convergence, degree of approximation

Cited in 1 Document

**Keywords:**

[simulation](#); [Bernstein-positive approximation](#); [smoothness](#); [Lorentz operators](#)

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