

$$\sum_{n=1}^{\infty} P(X_n \in B_n) \{ P(X_n \notin B) \}^{n-1}$$

$$= P(X_1 \in B_n) \sum_{n=1}^{\infty} \{ P(X_1 \notin B) \}^{n-1}$$

$$= P(X_1 \in B_n) \cdot \frac{1}{1 - P(X_1 \notin B)} = \frac{P(X_1 \in B_n)}{P(X_1 \in B)}$$

$= P(X_1 \in B_n | X_1 \in B) = P(X_1 \leq x | X_1 \in B)$ which is the truncated distribution of X .

The efficiency of the algorithm is measured by $E(N)$. The lower is the value of $E(N)$, better is the algorithm.

Now, $N \sim NB(1, p)$ where $p = P(X_1 \in B)$

$$\rightarrow q^{n-1} p, n \geq 1$$

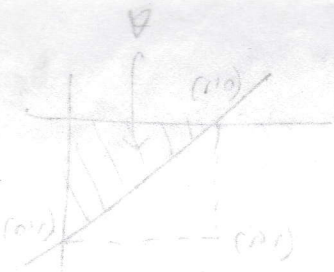
$$E(N) = \frac{1}{p} = \frac{1}{P(X_1 \in B)}$$

If $P(X_1 \in B)$ is too large, the algorithm is close to the efficient.

Assignment

Draws are from truncated normal, binomial & exponential distns.

$$\frac{1}{5} = A \text{ (area)}$$



(3)

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