

Re: Help: Exchange of limit and expectation

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- *From:* "Yecloud" <yecloud@xxxxxxxx>
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Herman Rubin wrote:

In article <1152972077.474858.29030@xx>, Yecloud <yecloud@xxxxxxxx> wrote:

Hi, all,

Please give me a help. If I have a sequence of random variables $\{X_n\}$, $X_n \geq 0$ and if I know the limit of X_n and the limit of $E(X_n)$ are bounded (where $E(X_n)$ is monotonically increasing), what's the condition for $\lim(E(X_n)) = E(\lim(X_n))$? or if it always holds, how to prove it?

If the X_n are monotonically increasing, this is merely the monotone convergence theorem. If not, one needs a uniform integrability condition, which is needed to prevent $P(E_n) \rightarrow 0$ and $E(X_n * I_{E_n})$ not going to 0.

Thanks! Actually, in my problem, X_n is a function of two random variables (s,t) , i.e., $X_n = f_n(s) * \exp(-t)$. for each s , $f_n(s)$ is monotonically increasing with n . Do you think the monotone convergence theorem could be used here?

Thanks a lot.
-Cloud

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This address is for information only. I do not claim that these views
are those of the Statistics Department or of Purdue University.
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