

Convergence results for conditional expectations

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Let E, F be two Polish spaces and $[X_n, Y_n], [X, Y]$ random variables with values in $E \times F$ (not necessarily defined on the same probability space). We show some conditions which are sufficient in order to assure that, for each bounded continuous function f on $E \times F$, the conditional expectation of $f(X_n, Y_n)$ given Y_n converges in distribution to the conditional expectation of $f(X, Y)$ given Y .

Keywords: conditional expectation; Skorohod's theorem; weak convergence of probability measures