Correction to a Proof

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K. L. Chung's paper [1], pp. 253–254, has a proof of mine of a result of Doebelin. Naresh Jain has pointed out that I did not show the measurability of the function $\tilde{\varphi}$ defined in the proof, although tacitly assuming it. Leaving open the question of measurability, I show below that the proof can be fixed with one essential modification. Some corrections to other parts of the paper, supplied by Chung, are included at his request.

Note that if $x \in A^0$, we can assume $C_x \subset A^0$ (in fact it is not hard to see that necessarily $C_x \subset A^0$).

As before, $\tilde{\varphi}(x) > 0$ for $x \in A^0$; also $x \in E_n$ implies $C_x \subset E_n$. Furthermore $\bigcap E_n$ is empty, since $x \in \bigcap E_n$ would imply $\tilde{\varphi}(x) = 0$.

Let E'_n be a cl. subset of E_n having maximum φ -measure among all cl. subsets of E_n . For the moment put $E'_n = \emptyset$ if E_n has no cl. subset, but it will be seen that $E'_n \neq \emptyset$.

If $A^0 - E'_n$ has a cl. subset, it has a cl. subset F with $\varphi(F) \leq \lambda/n$, since A^0 has no indec. cl. subset. Then $x \in F$ implies $\tilde{\varphi}(x) \leq \lambda/n$, whence $F \subset E_n$. Then $E'_n \cup F$ would be a cl. subset of E_n with greater φ -measure than E'_n , a contradiction. Hence $A^0 - E'_n$ has no cl. subset. This also shows $E'_n \neq \emptyset$, since A^0 is cl. From prop. 14.1 (not prop. 11.1 as stated on p. 254), $A^0 - E'_n$ is not abs. ess. Since $A^0 = \bigcup (A^0 - E'_n)$, A^0 is not abs. ess., as was to be proved.

On p. 231, delete the paragraph beginning "More generally ...".

p. 235, line 5: read "least" for "finite".

p. 241, line 13: read " $P^{(d)}$ " for the first " $P^{(k)}$ ".

p. 249, (19) and (20): delete the second " $X -$ " in each formula.

Reference

1. Chung, K. L.: The general theory of Markov processes according to Doebelin. Z. Wahrscheinlichkeitstheorie verw. Geb. 2, 230–254 (1964).

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(Received December 16, 1968)