

Lecture 15 notes

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Exit times

Today, we largely followed Sect. 1.10 of the text. Again, there are many more nice examples there than I can possibly cover.

The main result here is Theorem 1.29, which shows that if $S = A \cup C$ with A, C disjoint, and C is finite, then the condition that

$$P_x(V_A < \infty) > 0 \tag{1}$$

guarantees that the system of equations

$$g(x) = 1 + \sum_{y \in S} p(x, y)g(y) \tag{2}$$

with $g(a) = 0$ for $a \in A$. The key steps are very similar to those in Theorem 1.28. See the text and Lecture 14 notes for more details.