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# **On non-simple marked point processes**

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**Abstract** Simple point processes are often characterized by their associated compensators or conditional intensities. Non-simple point processes are not uniquely determined by their conditional intensity and compensator, so instead one may identify with the point process its associated simple point process and corresponding conditional intensity, on an expanded mark space. Some relations between the conditional intensity on the expanded mark space and the ordinary conditional intensity are investigated here, and some classes of separable non-simple processes are presented. Transformations into simple point processes, involving thinning and rescaling, are presented.

**Keywords** Point process · Simplicity · Counting process · Jump process · Conditional intensity · Random time change · Random thinning