$\nearrow$ m, B_0, ν

7. Determine the second-order factorial moment measure of a binomial point process. Φ

$\hookrightarrow$ $C \in \mathcal{B}^{[2]}$: $\alpha^{(2)}(C) = \mathbb{E} \sum_{X,Y \in \operatorname{supp} \Phi}^{\neq} \mathbb{1}[(X,Y) \in C]$

$E^{[2]}$ ... E^2 without diagonals

$\mathcal{B}^{[2]}$ ... Borel sets on $E^{[2]}$ ... generated by $A \times B$ with A, B disj...
(Proof of T 34)

$C = A \times B$: $\alpha^{(2)}(A \times B) = \mathbb{E} \sum_{X,Y \in \operatorname{supp} \Phi}^{\neq} \mathbb{1}(X \in A)\, \mathbb{1}(Y \in B) = \dots$

A, B disjoint ... enough to specify $\alpha^{(2)}$ on generato...
of $\mathcal{B}^{[2]}$

$\mathbb{E} / \sum$ ... non-negative terms, deterministic number ν

$$\dots \sum_{X,Y \in \operatorname{supp} \Phi}^{\neq} \mathbb{P}(X \in A, Y \in B) = \sum_{X,Y \in \operatorname{supp} \Phi}^{\neq} \mathbb{P}(X \in A)\, \mathbb{P}(Y \in B) =$$

$$= m(m-1) \frac{\nu(A)}{\nu(B_0)} \cdot \frac{\nu(B)}{\nu(B_0)}.$$