Zbl 122.24802
Erdős, Pál; Hanani, H.
On a limit theorem in combinatorial analysis (In English)
Publ. Math. 10, 10-13 (1964). [0033-3883]

Let $M(k,l,n)(m(k,l,n))$ be a minimal (maximal) system of combinations of k out of n such that every combination of l occurs at least (at most) once. Let $|M(k,l,n)|(|m(k,l,n)|)$ be the number of combinations in $M(k,l,n)(m(k,l,n))$ and $\mu(k,l,n) = |M(k,l,n)|\frac{\binom{k}{l}}{\binom{n}{l}}$, $\nu(k,l,n) = |m(k,l,n)|\frac{\binom{k}{l}}{\binom{n}{l}}$. Trivially $\nu(k,l,n) \leq 1 \leq \mu(k,l,n)$. The authors prove $\lim_{n\to\infty}\mu(k,2,n) = \lim_{n\to\infty}\nu(k,2,n) = 1$. If p is a power of a prime then $\lim_{n\to\infty}\mu(p+1,3,n) = \lim_{n\to\infty}\nu(p+1,3,n) = 1$.

H.B.Mann

Classification:
05A05 Combinatorial choice problems
05A15 Combinatorial enumeration problems