For every pair of fixed natural numbers $k > l$ we consider families of subgraphs of the complete graph $K_n$ such that each graph in the family has at least $k$ connected components while the union of any two has at most $l$. We show that the cardinality of such a family is at most exponential in $n$ and determine the exact exponential growth of the largest such families for every value of $k$ and $l = 1$.

Let $C(k) = C(k, n)$ be the family of those subgraphs of $K_n$ which have at least $k > 1$ connected components. We say that a family $G \subseteq C(k, n)$ is a connector family if the union of any two of its members is connected. We are interested in the largest cardinality of a connector family, asymptotically in $n$ and as a function of $k$. Let $D$ be the family of all the connected graphs. Let the largest cardinality of a connector family be $M(C(k, n), D)$. We have

**Theorem**

For every $k > 0$ the largest size $M(C(k, n), D)$ of a connector family is exponential in $n$ and the asymptotic exponent is

$$\lim_{n \to \infty} \log \sqrt[n]{M(C(k, n), D)} = h\left(\frac{1}{k}\right),$$

where $h : [0, 1] \to [0, 1]$ is the binary entropy function. (Received September 18, 2012)