The Erdos-Heilbronn Conjecture for Finite Groups

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The Erdos-Heilbronn Conjecture states that for any two nonempty subsets $A$ and $B$ of $\mathbb{Z}/p\mathbb{Z}$ we have $|A+B| \geq \min\{p, |A| + |B| - 3\}$, where $A+B$ is the set of sums $a+b(\text{mod}p)$ with $a$ in $A$ and $b$ in $B$ and $a \neq b$. Dias da Silva and Hamidounne established the result for the case $A = B$ in 1994 while Alon, Nathanson, and Ruzsa established the more general result in 1995. We further generalize this result and extend it from $\mathbb{Z}/p\mathbb{Z}$ to arbitrary finite (including non-abelian) groups.