In this paper, the authors study how the properties of remainders of spaces influence the properties of these spaces. If $X$ is a dense subspace of a space $B$, then $B$ is called an extension of $X$ and the subspace $Y = B \setminus X$ is called a remainder of $X$. Especially, the authors study properties of remainders and extensions of topological groups.

Their main result states that if $Y$ is a remainder of a topological group $G$ in an extension $B$ of $G$, and every closed pseudocompact $G_\delta$-subspace of $Y$ is compact, and $B$ contains a nonempty compact subset $\Phi$ of countable character in $B$ such that $G \cap \Phi \neq \emptyset$, then $G$ is a paracompact $p$-space.

Moreover, they study main facts for images and preimages of topological groups under perfect mappings, in the view of remainders and extensions. They also present examples, related to the meanings that are studied in this paper.

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MSC:
54A25 Cardinality properties (cardinal functions and inequalities, discrete subsets)
54H11 Topological groups (topological aspects)
54B05 Subspaces in general topology

Keywords:
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References: