This paper studies two kinds of adjacency relations in a digital product such as a $C_k$- and $G_k$-adjacency. The $G_k$-adjacency relation is a new adjacency relation in $X \times X$ derived from $(X, k)$. This paper initially develops two types of continuities related to the multiplication $\alpha : (X \times X, G_k) \to (X, k)$. Then a DT-$k$-group is defined and it is shown that the pair $(SC_{n,k}, \ast)$ is a DT-$k$-group with a certain group operation $\ast$, and the $n$-dimensional digital space $(Z_n, 2n, +)$ with the usual group operation “+” on $Z_n$ is a DT-$2n$-group.

Reviewer: Wei Yao (Nanjing)

MSC:
54H11 Topological groups (topological aspects)
54H30 Applications of general topology to computer science (e.g., digital topology, image processing)

Keywords:
digital topological version of a topological group; DT-$k$-group; compatible adjacency; $C_k$-adjacency; $G_k$-adjacency; $G_k$-continuity; digital topology

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References:

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