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$\mathbb{Z}_p \times \mathbb{Z}_p$ is a BCI-group

Haar graphs are natural bipartite analogues of Cayley digraphs. The BCI-problem asks whether two Haar graphs of a group G are isomorphic if and only if they are isomorphic group by a list of specific maps, all of which are automorphisms of $\mathbb{Z}_2 \ltimes G$. Let p be an odd prime. We show that $\mathbb{Z}_p \times \mathbb{Z}_p$ is a BCI-group, meaning two Haar graphs of $\mathbb{Z}_p \times \mathbb{Z}_p$ are isomorphic if and only if they are isomorphic by maps on the specific list. This is the first example of a group G that is a BCI-group where the group $\mathbb{Z}_2 \ltimes G$ is not a CI-group with respect to digraphs.