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*Locally injective homomorphism to the simple Weight graphs*

A Weight graph is a connected (multi)graph with two vertices  $u$  and  $v$  of degree at least three and other vertices of degree two. A Weight graph is called simple if the degree of  $u$  and  $v$  is three. We show full computational complexity characterization of the problem of deciding the existence of a locally injective homomorphism from an input graph  $G$  to any fixed simple Weight graph by identifying polynomial cases and NP-complete cases.