Enumerating unlabelled embeddings for digraph embeddings
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Abstract. A 2-cell embedding of an Eulerian digraph $D$ into a closed surface is said to be directed if the boundary of each face is a directed closed walk in $D$. In this paper, a method is developed with the purpose of enumerating unlabelled embeddings for an Eulerian digraph. As an application, we obtain explicit formulas for the number of unlabelled embeddings of directed bouquets of cycles $B_n$, directed dipoles $OD_{2n}$ and for a class of regular tournaments $T_{2n+1}$. 