points, into the edge $x y$ of $B$. Then $T$ is an interior transformation. In fact $T$ is a local homeomorphism which is 2 to 1 .

Since $A$ is a planar graph, whereas $B$ is non-planar ( $B$ is, in fact, one of the two well known Kuratowski primitive skew curves), clearly $A$ contains no subset homeomorphic with $B$. Incidentally this example shows that planarity is not an interior property (that is, it is not invariant under interior transformations).

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## ON THE TRANSFORMATION GROUP FOR DIABOLIC MAGIC SQUARES OF ORDER FOUR*

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This paper concerns only magic squares of order four, and all statements of the paper are to be construed as applying only to magic squares of order four.

One says that

| $a$ | $b$ | $c$ | $d$ |
| :---: | :---: | :---: | :---: |
| $e$ | $f$ | $g$ | $h$ |
| $i$ | $j$ | $k$ | $l$ |
| $m$ | $n$ | $o$ | $p$ |

is a diabolic (or pan-diagonal or Nasik) magic square if $a, b, \cdots, p$ are $1,2, \cdots, 16$ in some order, and each row, column, and diagonal adds up to 34 . This is to include broken diagonals such as $i, f, c, p$, or $c, h, i, n$. A diabolic magic square clearly remains diabolic if subjected to the following transformations:
$A$. Reflection about the $a, f, k, p$ diagonal.
B. Rotation through $90^{\circ}$ counter-clockwise.
C. Putting the first column last.
D. Putting the first row last.

For many purposes it is convenient to consider a diabolic magic

[^0]
[^0]:    * Presented to the Society, December 30, 1937.

