Mr. L. H. Harper recently pointed out to me that the proof in [1] is not complete. The argument given in Cases 2 and 3 is only valid if $P \neq A$ or $B$. The purpose of this note is to supply the missing details. We use the notation of [1] and assume all the hypotheses of [1, §5].

**Lemma.** Suppose $\Gamma$ has a vertex $X$ of order 2 such that the two edges $e$ and $e'$ meeting $X$ join $P$ to $X$ and $X$ to $P$ respectively. Then the theorem is true for $\Gamma$.

**Proof.** Let $\Gamma'$ be the result of deleting $e$, $e'$, and $X$. The theorem holds for $\Gamma'$ by induction. Any unicursal path on $\Gamma'$ has the form $\pi_1 \pi_2 \cdots \pi_n$ where each $\pi_i$ is a path starting and ending at $P$ but not meeting $P$ between. Clearly $n$ is the number of edges leaving $P$ in $\Gamma'$ and so is the same for all paths. Let $\lambda$ be the path $ee'$ from $P$ to $P$ in $\Gamma$. We get all possible unicursal paths on $\Gamma$ by starting with such paths on $\Gamma'$ and inserting $\lambda$, getting $\lambda \pi_1 \cdots \pi_n$, $\pi_1 \lambda \cdots \pi_n$, $\pi_1 \cdots \pi_n \lambda$. Assuming that $e$, $e'$ are the last two edges in the chosen ordering of the edges, we have $\epsilon(\pi_1 \cdots \pi_\lambda \pi_{i+1} \cdots \pi_n) = \epsilon(\pi_1 \cdots \pi_n)$. Thus $\sum \epsilon(\pi) = (n+1) \sum \epsilon(\pi') = 0$, the first sum being over all unicursal paths on $\Gamma$ and the second over such paths on $\Gamma'$.

We now consider Case 2 of [1]. If $P = A$, we can repeat the argument of Case 2 using $B$ and $C$ in place of $B$ and $A$ with only minor modifications. This will be possible provided $C \neq A$, but if $C = A$, the lemma applies with $X = B$. Suppose now that $P = B$. Let $U$ be the set of unicursal paths on $\Gamma$ starting at $A$, $U'$ the set of such paths which begin with $e$, and $U_\iota$ the set of unicursal paths on $\Gamma_\iota$ starting at $A$. Then the argument of [1, Case 2] shows that $U = U' \cup U_\iota$, a disjoint union. Since the theorem holds for $U$ by what we have just proved, and also for $U_\iota$, we see that $\sum \epsilon(\pi') = 0$ where $\pi'$ runs over all elements of $U'$. But there is a one-to-one correspondence between $U'$ and the set of unicursal paths starting from $B$, given by $ee'e_1 \cdots e_n \leftrightarrow e'e_1 \cdots e_n e$. Since $n = E - 2$ is even, $\epsilon(ee'e_1 \cdots e_n) = -\epsilon(e' \cdots e_n e)$. Therefore the theorem holds in this case also.

Finally, we consider Case 3. If there is an edge not meeting $P$, choose it for $e_\delta$. Then $P \neq A$, $B$ and we are done. Suppose every edge meets $P$. Let $P$, $A_1$, $\cdots$, $A_n$ be the vertices. Then $E = 2V = 2n + 2$. 

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Each $A_i$ must be joined to $P$ by at least two edges. This uses up all but two edges which must either be loops from $P$ to $P$, or must both join $P$ to some $A_i$. In this case, the lemma clearly applies except in the trivial cases $V=1$ or $2$.

There is also a misprint in Figure 9 of [1]. This figure should contain an additional edge labelled $e_3$ with $A$ as initial point.

**Reference**


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