I. Equivalent way of describing k-promotion. Let $\mathrm{D}_1 : \mathrm{Inc}^{[q]}(\lambda) \to \mathrm{Inc}^{[q]\cup\bullet}(\lambda)$ be the map from increasing tableaux labeled with $1, ..., q$ to increasing tableaux labeled with $1, ..., q, \bullet$ that replaces all 1s with $\bullet$s. Let Sw_n be the operator that finds all short ribbons containing $\bullet$ and n, leaves trivial ribbons unchanged, and switches n and $\bullet$ in nontrivial ribbons. Let Sw be the operator that finds all instances of $\bullet$, determines the minimum integer $k \leq q$ such that k labels a box directly right or below an instance of $\bullet$, and applies Sw_k. Let SW be the operator that applies Sw until all $\bullet$s have no boxes directly below or the right. Let Σ be the operator that cyclically permutes the labels: $q \to q-1 \to ... \to 1 \to q$.

In [1], k-promotion is described as $\Sigma \circ \mathrm{Sw}_q \circ ... \circ \mathrm{Sw}_1 \circ \mathrm{D}_1$. We claim that this is equivalent to $\Sigma \circ \mathrm{SW} \circ \mathrm{D}_1$.

COMPLETE

II. k-promotion commutes with FC. We can write $T \in \mathrm{Inc}^{[q]\cup\bullet}(\lambda) \to \mathrm{Inc}^{[q]\cup\bullet}(\lambda)$ as a set of pairs $\{(n, (i, j)) : (i, j) \in \lambda\}$ with the appropriate order constraints on n. Let $Q(i) = n_i$, where n_i is the i^{th} element in T, ordered lowest to highest. Define $FC((n, (i, j)) = (Q^{-1}(n), (i, j))$, so that $FC(T) = \{(Q^{-1}(n), (i, j))\}$.