1129-05-177 **Kerry Ojakian*** (kerryojakian@gmail.com). *Three graph duals and a bijection.*

In 1959 Denes showed that the number of vertex labeled trees on n vertices is the same as the number of factorizations of the permutation $(1, \ldots, n)$ into $n-1$ transpositions. Various research uncovered interesting bijections between these two sets; a bijection of particular interest is the bijection of Goulden and Yong, from 2002. The definition of their bijection is based on their topological notion of dual that applies to trees. I will speak about three alternative definitions of dual that we have devloped: a graph-theoretic one, an algebraic one, and a combinatorial "mind-body" dual. It is of interest to note that though our three definitions are different in spirit, they will turn out to be the same. Furthermore, on trees, our dual is the same as that of Goulden and Yong, but our dual in fact makes sense on any graph and allows us to give alternative proofs for Goulden and Yong's work. I will mention the bijection and motivate our definitions of dual, in particular, in honor of Charlie Suffel, we will consider what happens if Charlie's mind is swapped with the mind of one of his students! This is joint work with Nikolaos Apostolakis. (Received March 14, 2017)