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**Struct** is an algorithm being developed by the authors to guess the structure of a set of permutations. In some cases the structure discovered is sufficient to infer the generating function of the set and provides an enumeration of the permutations by length. A preliminary version of the algorithm will be presented and applied to several sets of permutations. Future enhancements of the algorithm will be able to conjecture upper and lower bounds where exact enumeration is still out of reach (for a computer algorithm). This research is funded by the Icelandic Research Fund, Grant no. 141761-051 (Received September 09, 2014)