

q - ENUMERATION OF PERMUTATIONS AVOIDING ADJACENT PATTERNS

By

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A thesis submitted in fulfillment of the requirements for the degree

Masters of Science

in Mathematics

at

The Department of Mathematics and Applied Mathematics

University of Venda

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2009

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Abstract

This thesis is mainly concerned with the derivation of the q - analogues of the exponential generating functions for permutations avoiding adjacent patterns. We investigate two topics.

Firstly, we derive the q - analogues for permutations on n with no $< -$ string of length 3. For completeness, we make a generalization and obtain the q - analogues for permutations on n with no $< -$ string of length k , for $k \geq 3$. We also derive the generating functions for permutations of length n with exactly one local maximum. We then consider permutations of length n avoiding three adjacent patterns simultaneously.

Finally, we consider the generating functions for permutations of length n with repeated patterns. This gives rise to Olivier functions.