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Paula Egging (eggi1576@ravens.benedictine.edu) and **Robert P Laudone*** (robert.laudone@gmail.com), 2 Sail View Court, Westerly, RI 02891, and **Amanda Owens** (asc003@connections.mcdaniel.edu). *Coloring Techniques for Pattern Avoidance over an Infinite Sequence.*

The authors make progress on the conjecture that one can construct an infinite square-free sequence from lists of size three. Furthermore, they extend the emerging method of entropy compression to prove that long-square-free sequences—sequences that avoids squares of length greater than four—can be chosen from lists of size three. Within this proof, the authors utilize and independently discover an isomorphism between plane trees and difference sequences (sequences of integers generated when running the algorithm in the entropy compression method).

This isomorphism reveals a deeply ingrained connection between the above conjecture and generating function theory, as generating functions are closely related to plane trees. With this in mind, the authors investigate Omega Sets in relation to generating functions. This exploration leads to the discovery of novel strategies that surpass the previous results of entropy compression in proving that one can avoid certain length squares over an infinite sequence when choosing from lists of varying sizes. The authors then proceeded to expand known work on shuffle squares to encompass shuffle long-squares, and provide a general formula for further expansion. (Received September 03, 2014)