

Abstract: We prove two new results about 0-1-fillings of skew diagrams avoiding long increasing and decreasing chains. In the first half of the thesis, we show that for a large class of skew diagrams, there is a bijection between sparse fillings avoiding an increasing chain of fixed length and sparse fillings avoiding a decreasing chain of the same length. In the second half, we extend a known inequality between the number of sparse 0-1-fillings of skew diagrams avoiding an increasing chain of length 2 and a decreasing chain of length 2 to all 0-1-fillings.