Creating Permutations for Actions on Young Tableaux

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I studied the relationship between abstract algebra and young tableaux along with representation theory. I found sequences and patterns in tables which represented multiplied permutations and the amount of permutations I could do. Working with upside down L - shaped young tableaux created a systematical way of how I could permute the numbers and how my first generation general equation formulated. After compiling the data of the amount of legal young tableaux I could create, my general equation followed a specific pattern that generated a different question. My general equation consisted of N denoting the amount of elements in the tableau and I added or subtracted any number that would equal the number of legal tableaux. I found that all of the added or subtracted numbers in the equations for different amounts of boxes in the column, went up by 2 and increased by 1 each time. I multiplied (compiled) the permutations to get 3 or 2 numbered permutations and then organized them into a table. From there I found multiple patterns that I could use to generate these tables for any sized upside down L – shaped tableau. By using these permutations, I tried finding a closed equation that would be able to tell me the number of permutations for any tableau. Later, I created an algorithm that was able to take the hook length or any young tableau and give me the number of permutations. I plan on working with many different variations of young tableau and modifying my algorithm so that it is specific to the work I am doing by hand.

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