

$$f \colon (i_{n-1}^1, \dots, i_{n-1}^x, s_{n-1}^1, \dots, s_{n-1}^y, o_{n-1}^1, \dots, o_{n-1}^z, i_n^1, \dots, i_n^x) \mapsto (s_n^1, \dots, s_n^y, o_n^1, \dots, o_n^z)$$