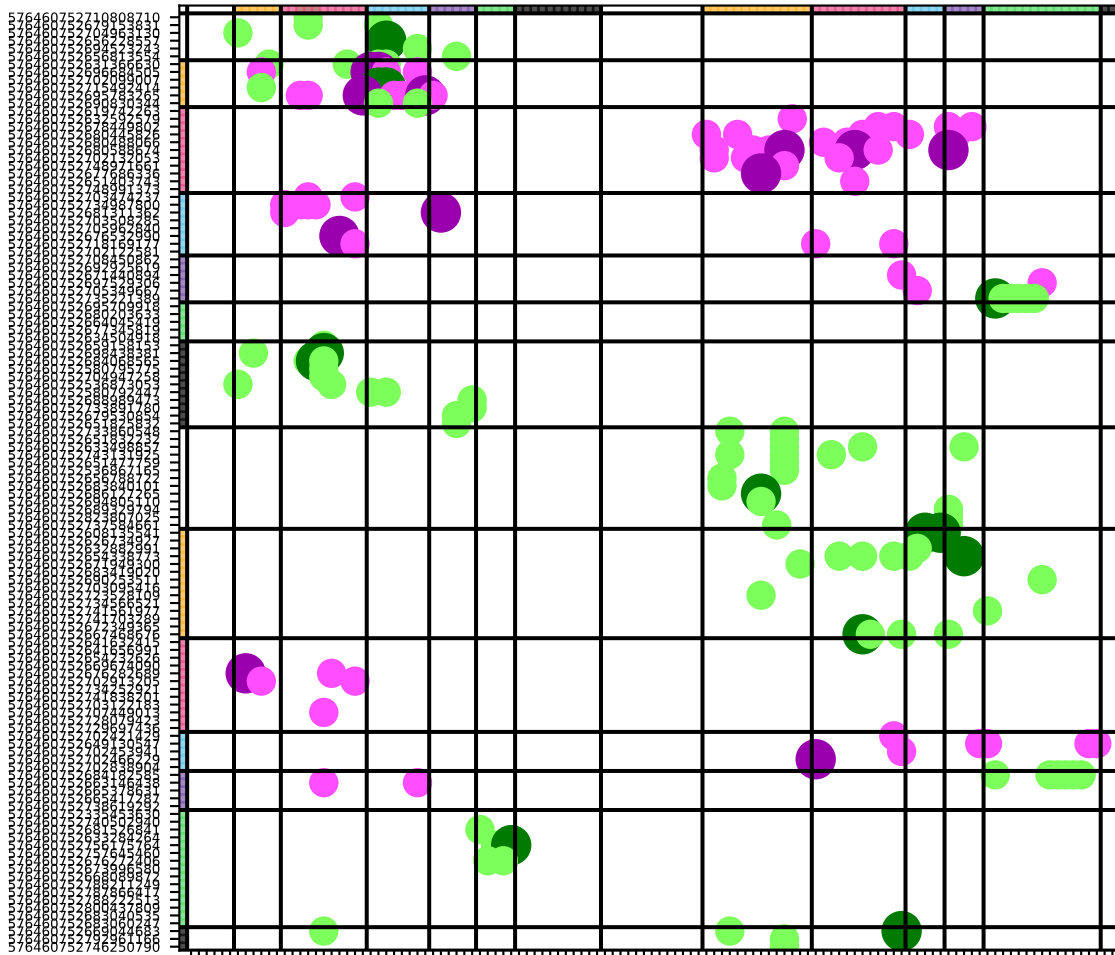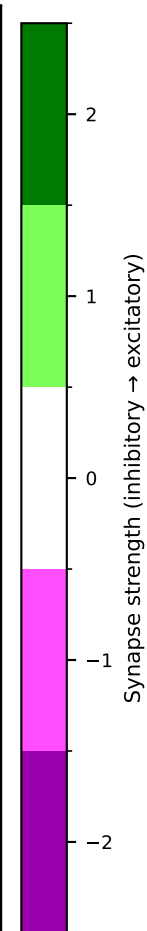left-right_matrix_e-i_gt