$\sigma_{(0,1)}$'s kernel is span of

$(1, 1, 0, 0, 0, 0, 0, 0), (0, 0, 1, 1, 0, 0, 0, 0), (0, 0, 0, 0, 1, 1, 0, 0), (0, 0, 0, 0, 0, 0, 1, 1)$

$\sigma_{(0,2)}$'s kernel is span of

$(1, 0, 0, 1, 0, 0, 0, 0), (0, 1, 1, 0, 0, 0, 0, 0), (0, 0, 0, 0, 1, 0, 0, 1), (0, 0, 0, 0, 0, 1, 1, 0)$

$\sigma_{(0,3)}$'s kernel is span of

$(1, 0, 0, 0, 0, 0, 0, 1), (0, 1, 0, 0, 0, 0, 1, 0), (0, 0, 1, 0, 0, 1, 0, 0), (0, 0, 0, 1, 1, 0, 0, 0)$

$\sigma_{(1,2)}$'s kernel is span of

$(1, 0, 1, 0, 0, 0, 0, 0), (0, 1, 0, 1, 0, 0, 0, 0), (0, 0, 0, 0, 1, 0, 1, 0), (0, 0, 0, 0, 0, 1, 0, 1)$

$\sigma_{(1,3)}$'s kernel is span of

$(1, 0, 0, 0, 0, 0, 1, 0), (0, 1, 0, 0, 0, 0, 0, 1), (0, 0, 1, 0, 1, 0, 0, 0), (0, 0, 0, 1, 0, 1, 0, 0)$

$\sigma_{(2,3)}$'s kernel is span of

$(1, 0, 0, 0, 1, 0, 0, 0), (0, 1, 0, 0, 0, 1, 0, 0), (0, 0, 1, 0, 0, 0, 1, 0), (0, 0, 0, 1, 0, 0, 0, 1)$