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Here is the question I asked
(it is a bit difficult to type it in plain text. I could do it
in Tex but don't know if this is ok with you).

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Let H be a matrix with n columns, m rows and entries in {0,1}.
Assume that H has 3 ones per row. In the following x denotes a binary vector of length n.

1)
Consider the linear system Hx=0 mod 2.
Let Z(H) be the number of solutions of such a system.
What is the maximum and minimum of Z(H) over all the matrices H.

2)
Assume H to be a uniformly random matrix as above.
(The tree non-vanishing positions in each row are chosen uniformly at random among the n choose 3 possible ones). Let b be a uniformly random binary vector of length m, and Z(H,b) be the number of solutions of the linear system Hx=b mod 2. What is the expectation of Z(H,b)?

3) How does the calculation change if yu want to compute the expectation of Z(H)?