Two numbers form a basis and select the average probability as the weight.

If the probability that the first bit is 1 is 50%, this method could give an accurate cPMF and ePMF.

If the input has n bits. The time complexity of this method is O((2^(n-1))^2) while the time complexity of traverse is O(2^(2n)).

A=[0.5,0.2,0.4,0.3], B=[0.5,0.6,0.6,0.1] ETAII

0.012096000000000003 (0.012096+0j)

0.024192000000000005 (0.024192+0j)

0.033264 (0.033264+0j)

0.04233599999999999 (0.042336+0j)

0.030744 (0.030744+0j)

0.061487999999999994 (0.061488+0j)

0.076608 (0.076608+0j)

0.09172799999999999 (0.091728+0j)

0.018624 (0.018624+0j)

0.037248 (0.037248+0j)

0.051216000000000005 (0.051216+0j)

0.06518400000000002 (0.065184+0j)

0.021128 (0.021128+0j)

0.042256 (0.042256+0j)

0.045880000000000004 (0.04588+0j)

0.04950400000000001 (0.049504+0j)

0.007104000000000001 (0.007104+0j)

0.014208000000000002 (0.014208+0j)

0.019536000000000005 (0.019536+0j)

0.024864000000000004 (0.024864+0j)

0.0039120000000000005 (0.003912+0j)

0.007824000000000001 (0.007824+0j)

0.006096 (0.006096+0j)

0.0043679999999999995 (0.004368+0j)

0.0005760000000000001 (0.000576+0j)

0.0011520000000000002 (0.001152+0j)

0.0015840000000000003 (0.001584+0j)

0.0020160000000000004 (0.002016+0j)

0.00021600000000000002 (0.000216+0j)

0.00043200000000000004 (0.000432+0j)

0.00021600000000000002 (0.000216+0j)

Change B to [0.3,0.6,0.6,0.1]

0.016934399999999995 (0.012096+0j)

0.024191999999999995 (0.024192+0j)

0.036892799999999996 (0.033264+0j)

0.04233599999999999 (0.042336+0j)

0.0430416 (0.030744+0j)

0.06148799999999999 (0.061488+0j)

0.082656 (0.076608+0j)

0.091728 (0.091728+0j)

0.026073600000000002 (0.018624+0j)

0.037247999999999996 (0.037248+0j)

0.0568032 (0.051216+0j)

0.06518399999999999 (0.065184+0j)

0.029579200000000003 (0.021128+0j)

0.042255999999999995 (0.042256+0j)

0.0473296 (0.04588+0j)

0.04950399999999999 (0.049504+0j)

0.009945600000000002 (0.007104+0j)

0.014208000000000002 (0.014208+0j)

0.021667200000000005 (0.019536+0j)

0.024864000000000004 (0.024864+0j)

0.0054768 (0.003912+0j)

0.007824000000000001 (0.007824+0j)

0.005404800000000001 (0.006096+0j)

0.0043679999999999995 (0.004368+0j)

0.0008064000000000001 (0.000576+0j)

0.0011520000000000002 (0.001152+0j)

0.0017568000000000002 (0.001584+0j)

0.0020160000000000004 (0.002016+0j)

0.00030240000000000003 (0.000216+0j)

0.0004320000000000001 (0.000432+0j)

0.00012960000000000003 (0.000216+0j)

According the probability that the first bit is 1 to set the weight

0.016934399999999995 (0.01403136+0j)

0.024191999999999995 (0.02806272+0j)

0.036892799999999996 (0.03858624+0j)

0.04233599999999999 (0.04910976+0j)

0.0430416 (0.03566304+0j)

0.06148799999999999 (0.07132608+0j)

0.082656 (0.08886528+0j)

0.091728 (0.10640448+0j)

0.026073600000000002 (0.02160384+0j)

0.037247999999999996 (0.04320768+0j)

0.0568032 (0.05941056+0j)

0.06518399999999999 (0.07561344+0j)

0.029579200000000003 (0.02450848+0j)

0.042255999999999995 (0.04901696+0j)

0.0473296 (0.0532208+0j)

0.04950399999999999 (0.05742464+0j)

0.009945600000000002 (0.00824064+0j)

0.014208000000000002 (0.01648128+0j)

0.021667200000000005 (0.02266176+0j)

0.024864000000000004 (0.02884224+0j)

0.0054768 (0.00453792+0j)

0.007824000000000001 (0.00907584+0j)

0.005404800000000001 (0.00707136+0j)

0.0043679999999999995 (0.00506688+0j)

0.0008064000000000001 (0.00066816+0j)

0.0011520000000000002 (0.00133632+0j)

0.0017568000000000002 (0.00183744+0j)

0.0020160000000000004 (0.00233856+0j)

0.00030240000000000003 (0.00025056+0j)

0.0004320000000000001 (0.00050112+0j)

0.00012960000000000003 (0.00025056+0j)