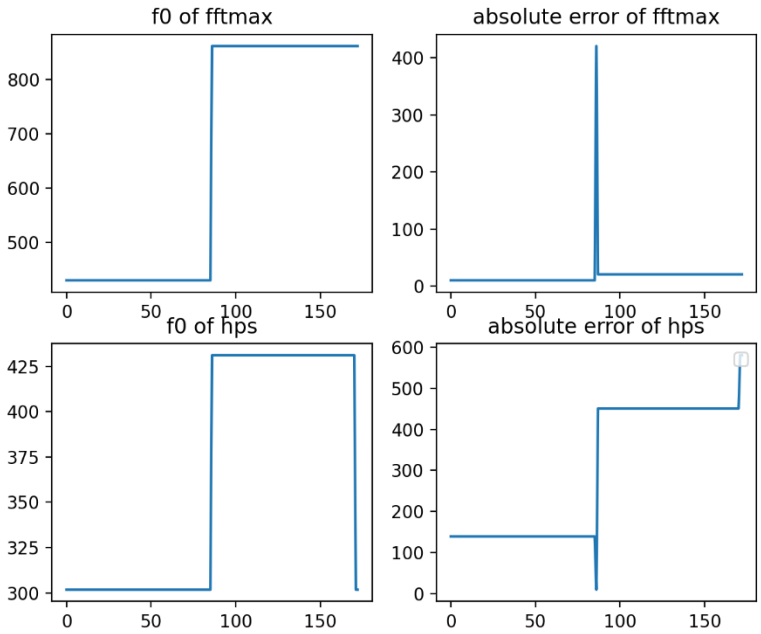
A.3

When the blockSize = 1024, the exact time resolution is about 0.0116

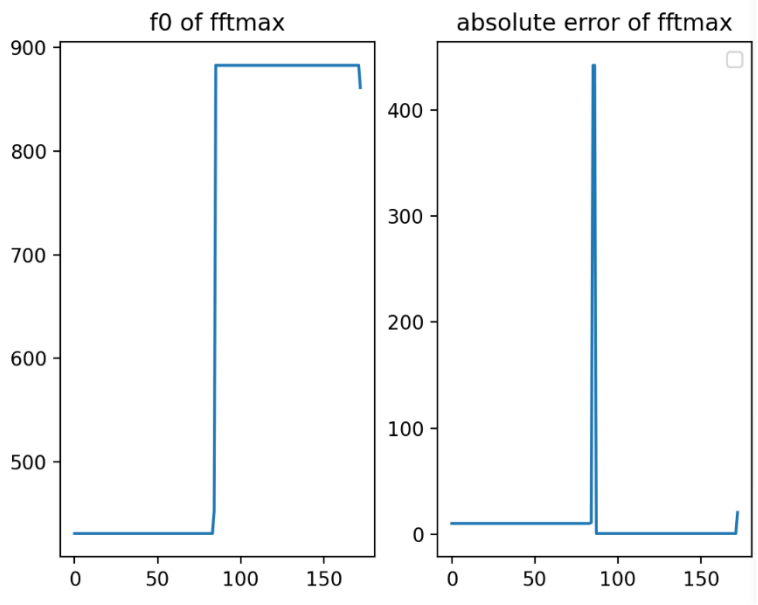
If we increase the hopSize, we can get more bins, then the time resolution could be higher.

E.1.



hps works on decimating the data in matrix, as you can see in code we are stepping by i+1 in matrix rows in code - so we lose frequency information - and therefore this increases the possibility of losing f0's. Hence hps is bad than fftmax

E.2



We can see that the error decreased. Because when we prolong the block length, the frequency resolution will be higher, then we can get a higher accuracy in frequency domain.