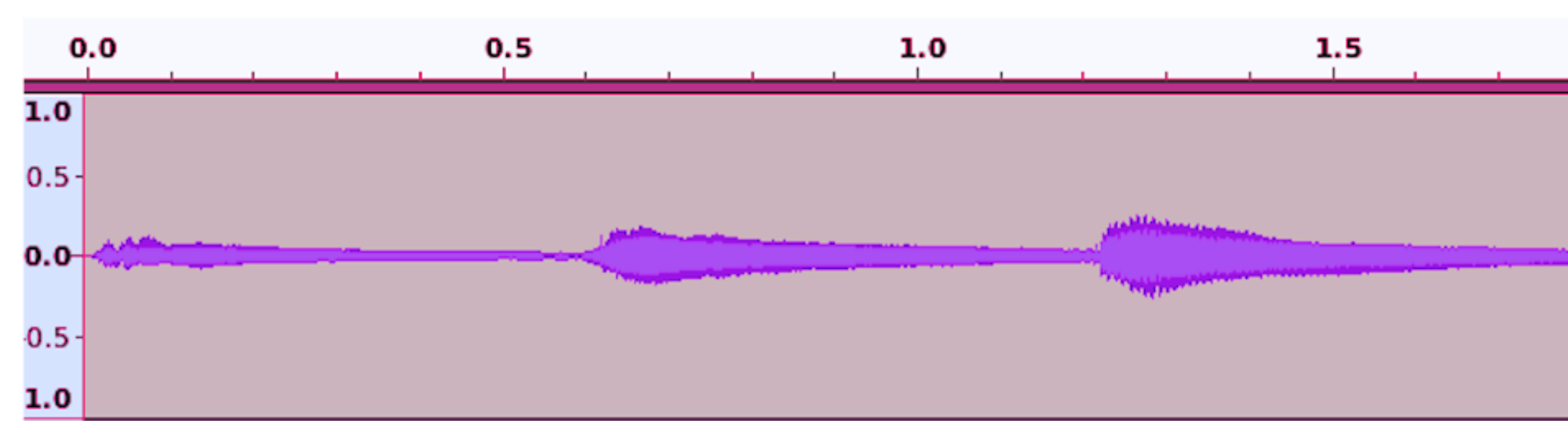
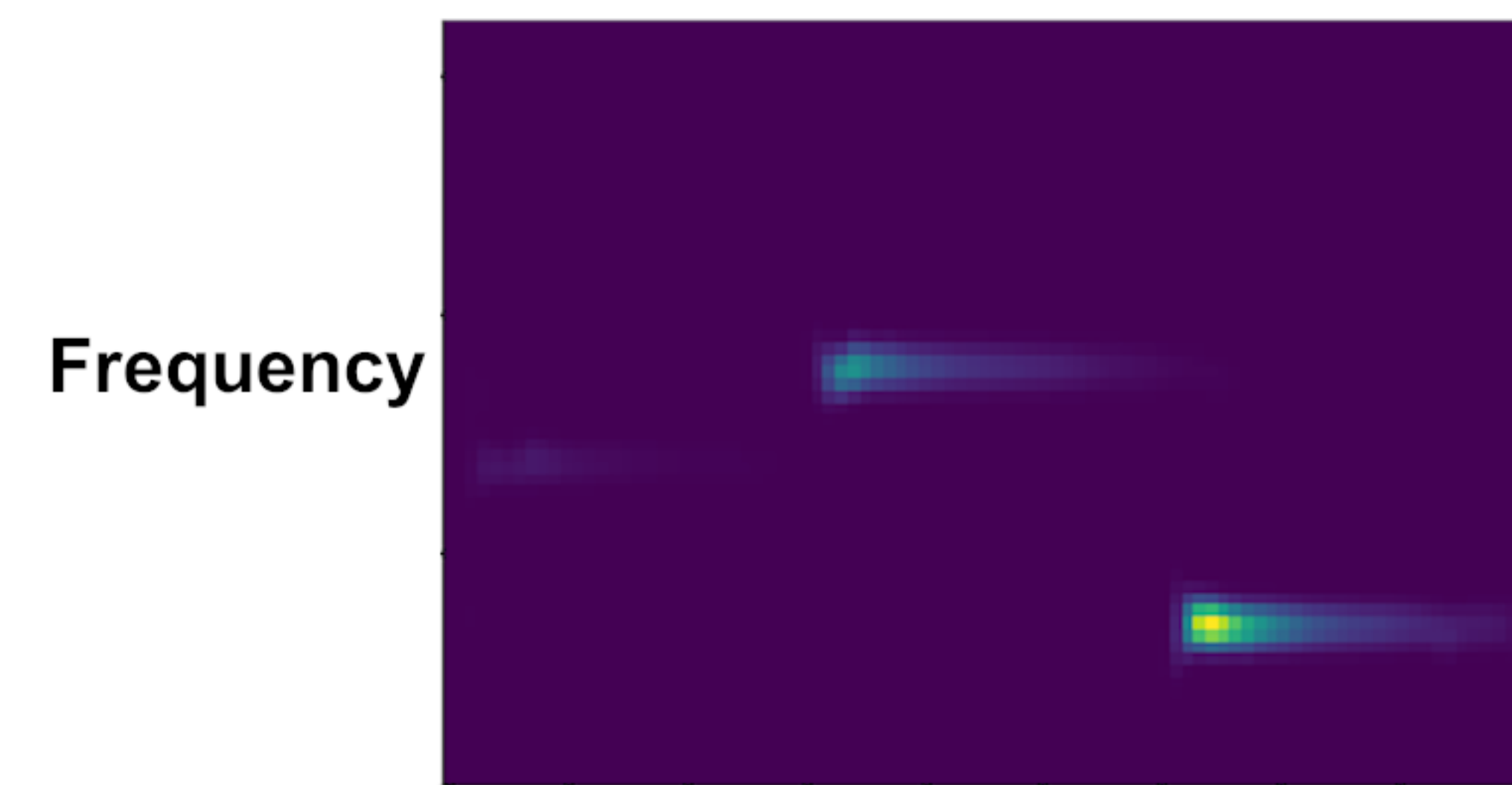


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Problem

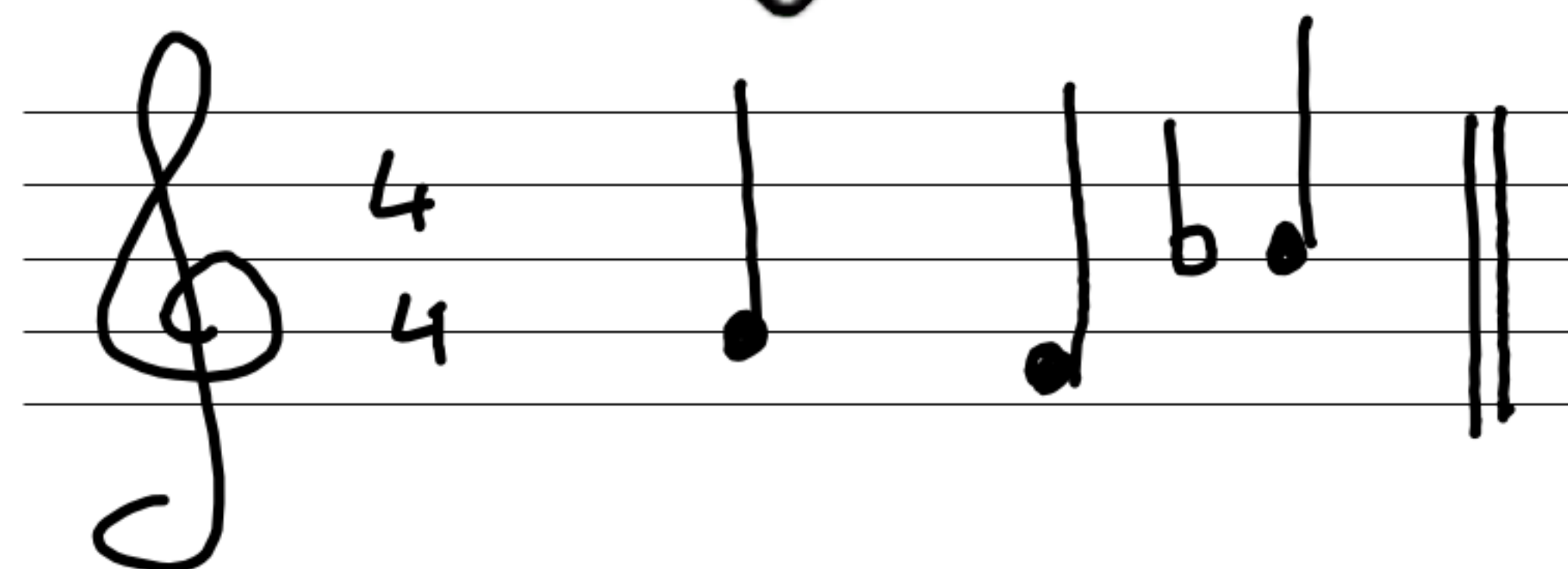


↓ STFT



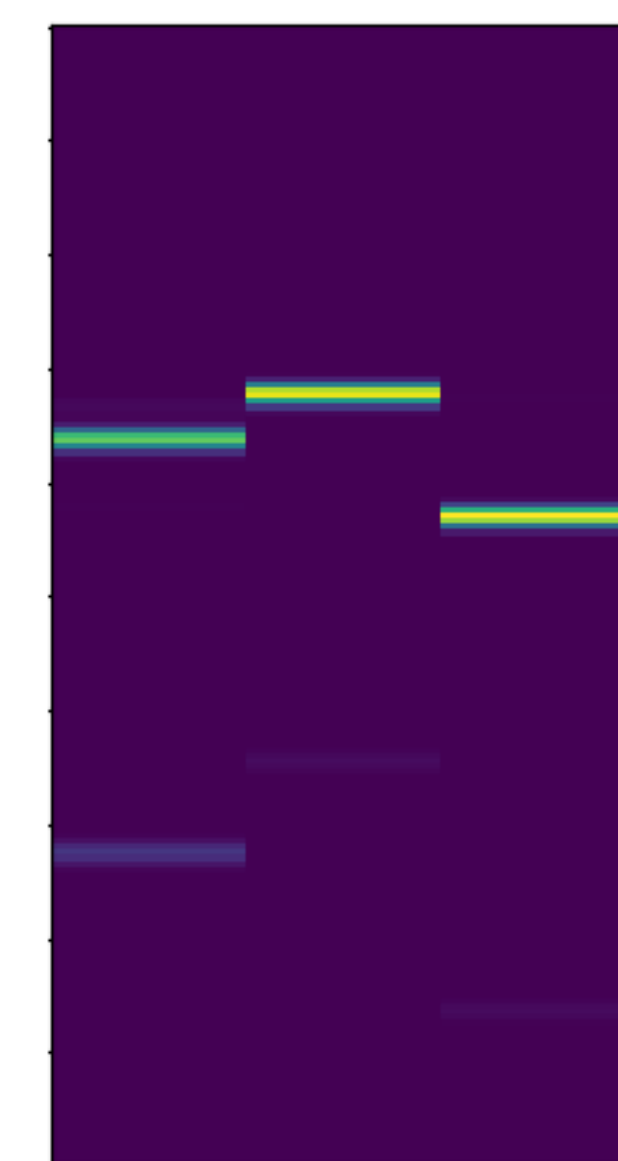
Time

↓

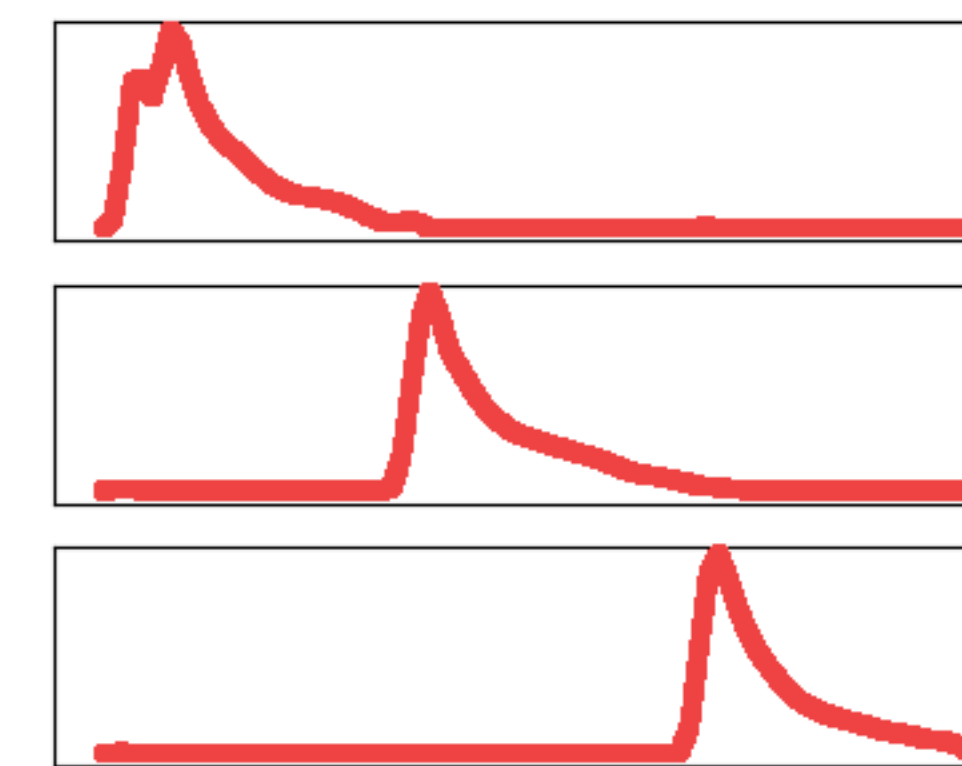


Nonnegative Matrix Factorization

W



H



NMF

Post Processing



NMF is often not unique
W, H may not make sense

Semi-Supervision

1/ Learn W on individual notes

(C4)



Rank1 NMF



w(do)

2/ Learn only H from the song

$$H = \operatorname{argmin}_{H \geq 0} D(X, WH)$$

H nonnegative

(C4)

Rank1 Convolutive NMF



→ W(do)

