

# Unmixer

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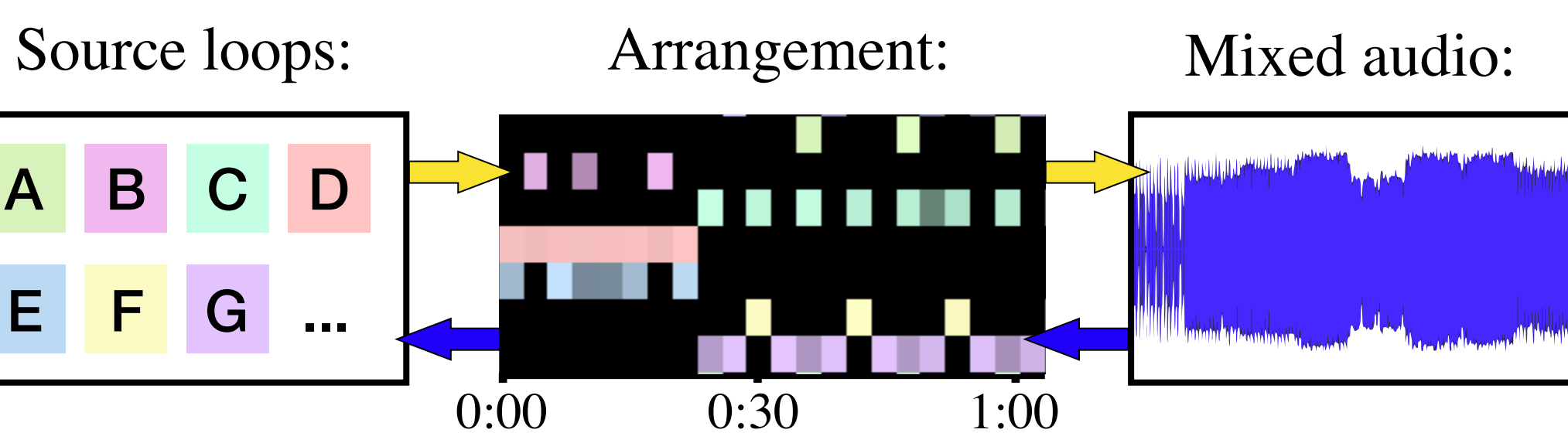
## An interface for extracting and remixing loops



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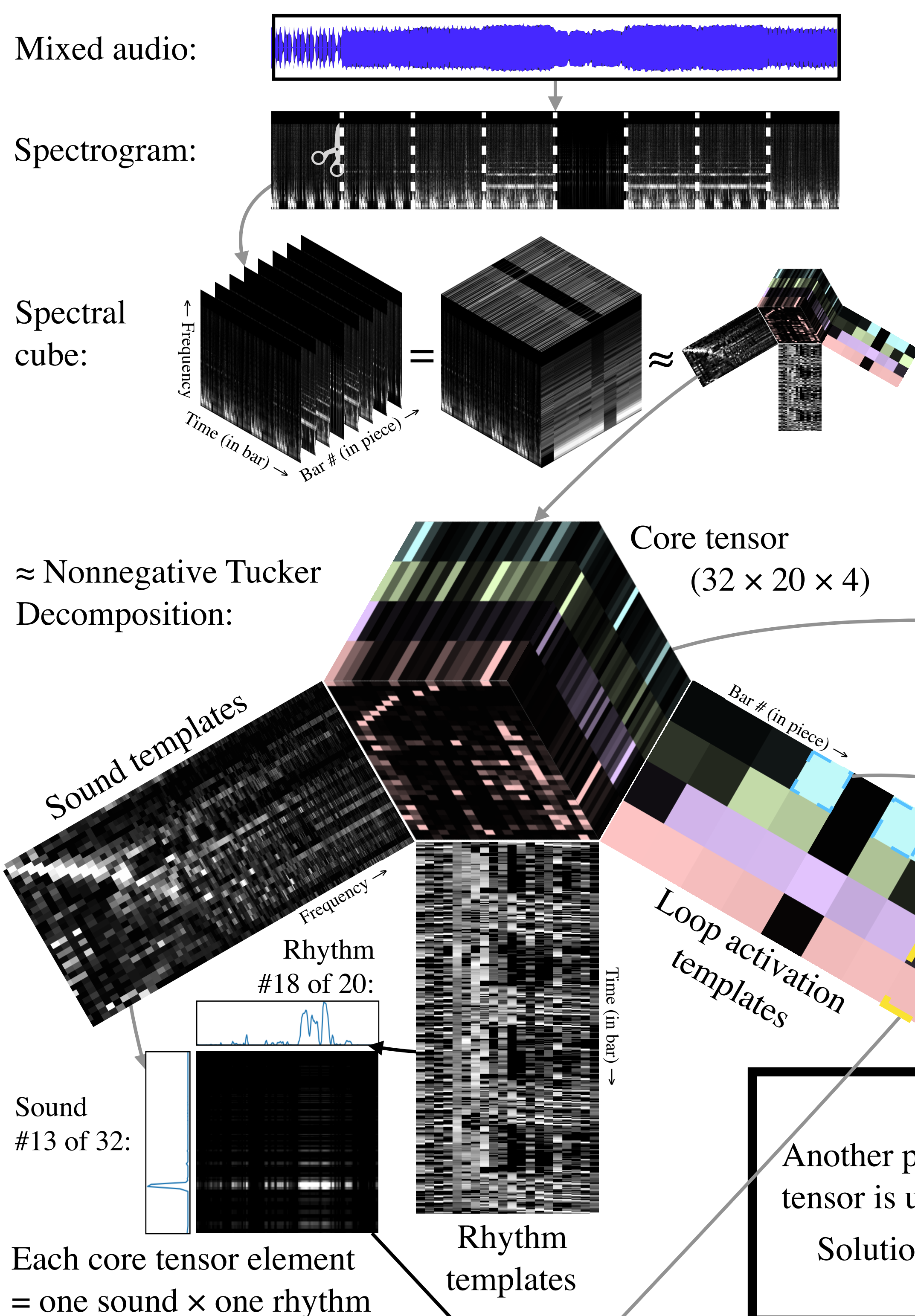
### 1. Motivation

A remix artist wants quick access to the “ingredients” of a song, but only has the mixed audio. Can we help them “de-compose” the audio into its source loops?

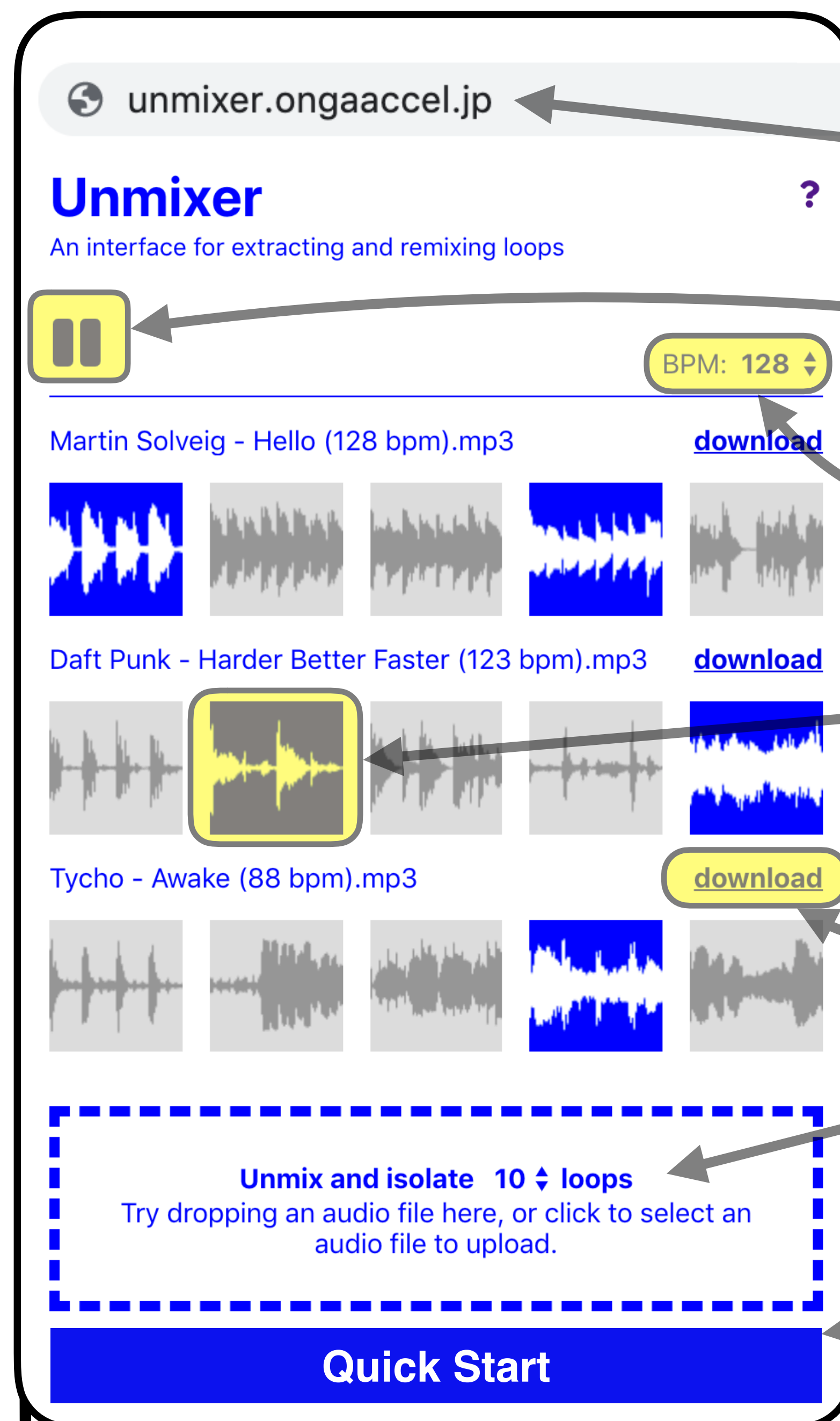


→ Composition happens this way →  
← Can we achieve de-composition? ←

### 3. Algorithm



### 2. Interface



Cross-platform browser app

Continuous looped playback

All loops adjusted to user-set global tempo

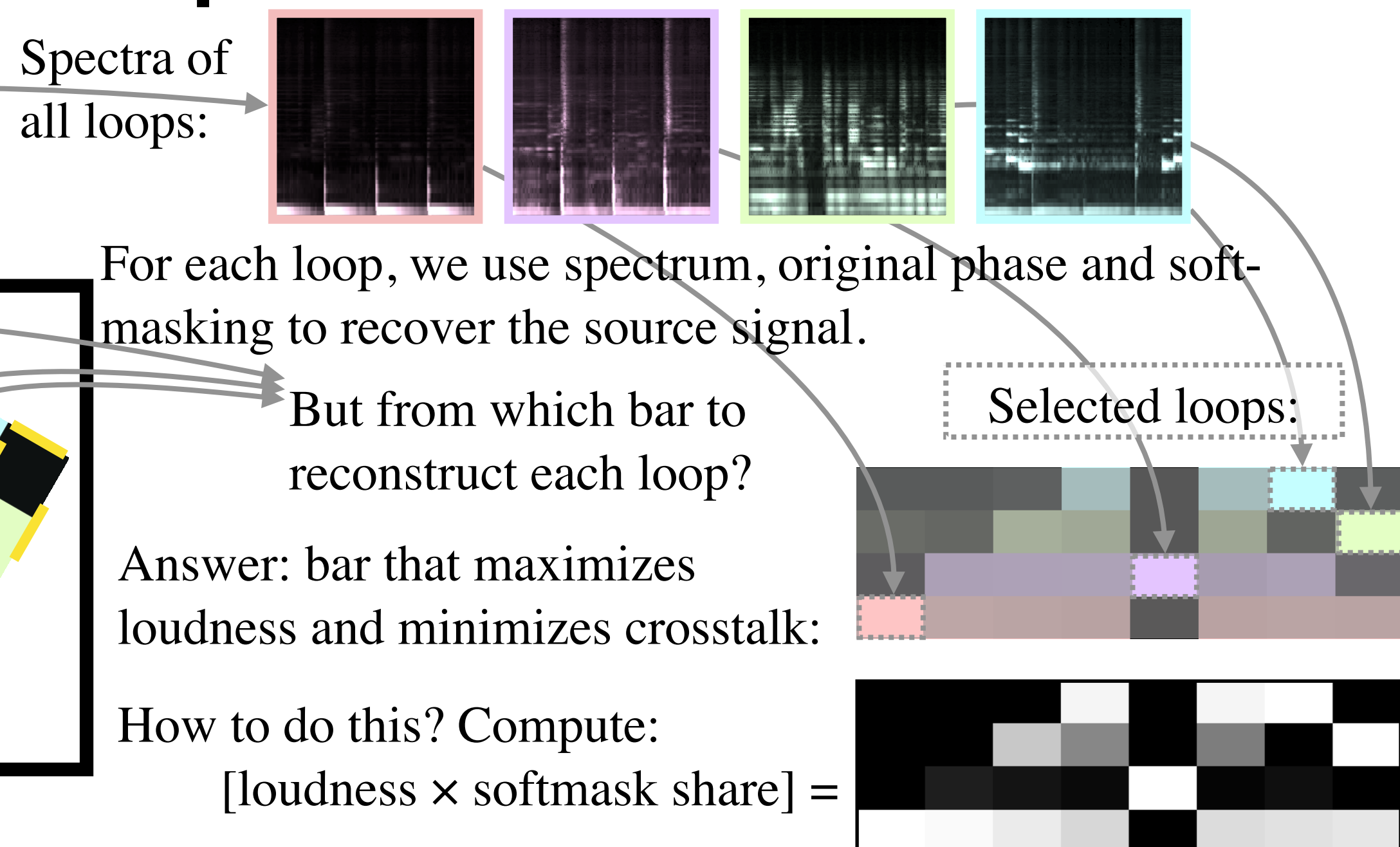
Click a sound to add it to the mix

Download loops to remix in your preferred DAW

Add as many songs as you like

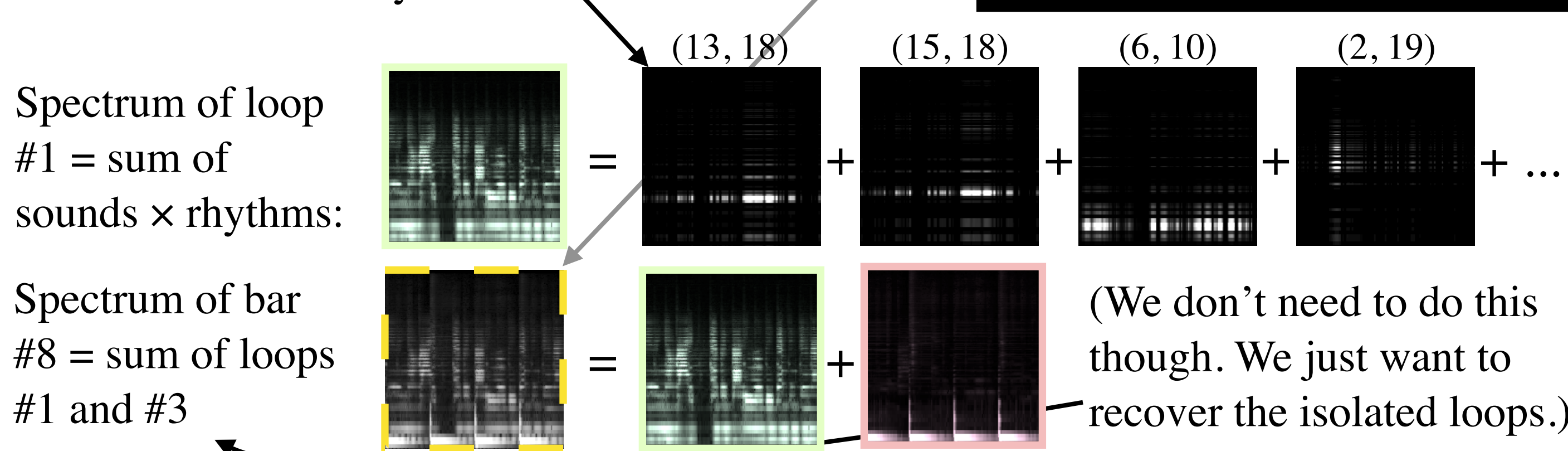
Quick Start button loads Creative-Commons loops

### 4. Improvements



Another problem: sometimes extracted loops are very similar. Estimation of core tensor is unconstrained, and slices can have many elements in common.

Solution: post-process core with sparse NMF to make loops more independent. (Sparse NTD not tractable.)



Loops estimated with  $n=4$ :

Purple loop content appears in blue too 😞

...with  $n=6$ , reduced to 4:

Purple and blue are independent now! 😊