

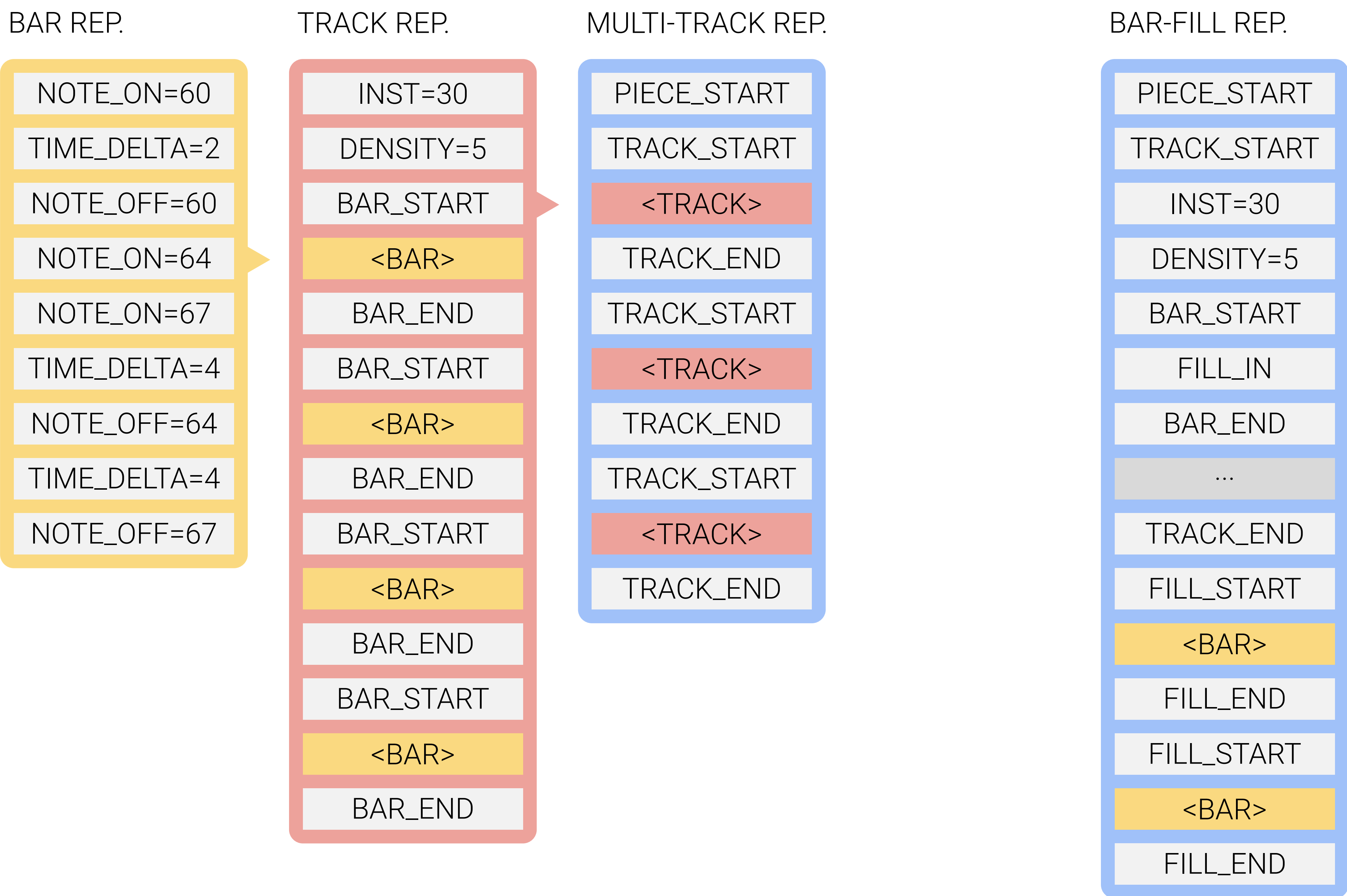
Flexible Generation with the Multi-Track Music Machine

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Overview

The Multi-Track Music Machine (MMM) is a transformer-based generative system which accommodates Track-Level and Bar-Level inpainting, with attribute control over note density and track instrumentation. To listen to examples and try the demo, click [here!](#)

Representation

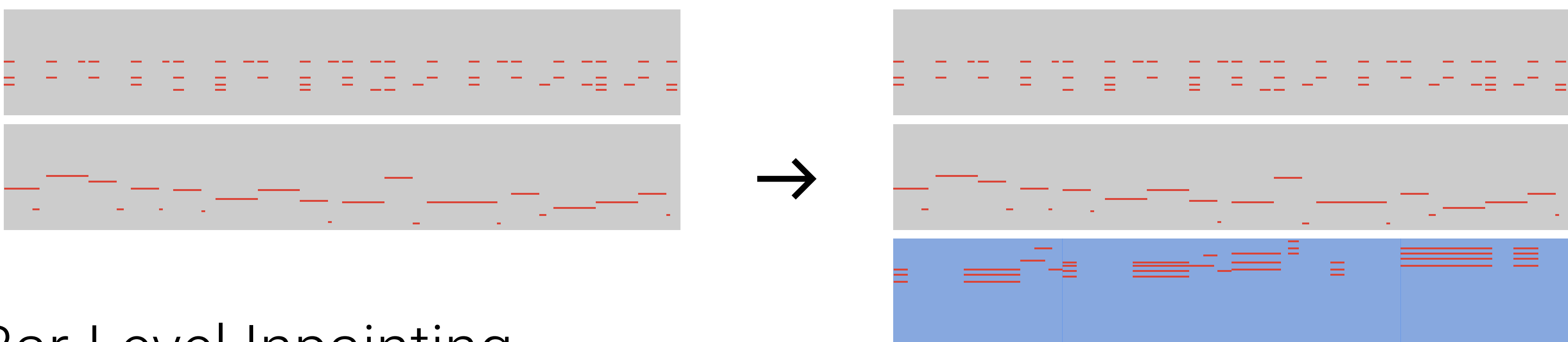


Typically musical material is represented as a single time-ordered sequence.

Instead, we create a time-ordered sequence of musical events for each track and concatenate them.

The Multi-Track and Bar-Fill representations are shown to the left, where yellow BAR tokens correspond to complete bars, and red TRACK tokens denote complete tracks.

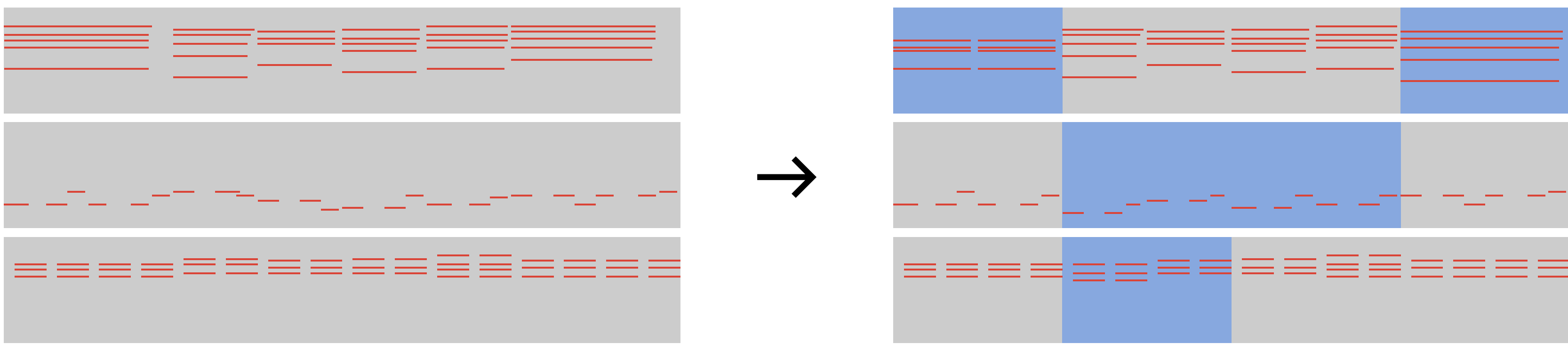
Track-Level Inpainting



New tracks can be generated that are conditioned on an arbitrary set of tracks.

The MIDI instrument can be specified for each generated track. To the left, we generate a new Piano track.

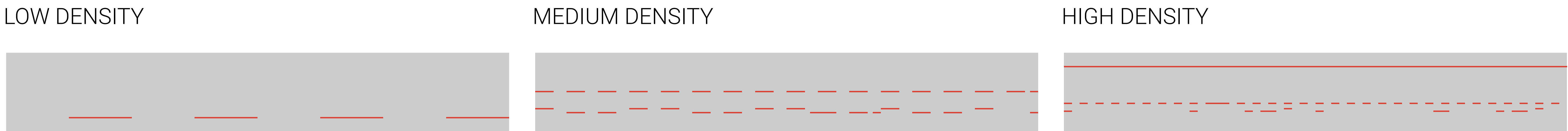
Bar-Level Inpainting



An arbitrary subset of the bars within a set of tracks can be resampled.

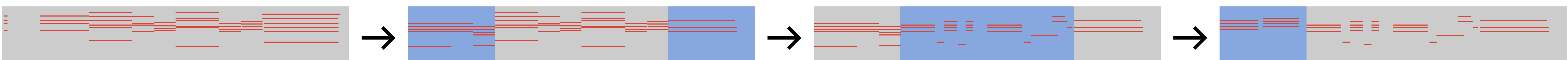
To the left, we resample the blue bars, conditioned on the remaining bars within the tracks.

Attribute Control for Note Density



The note density level can be specified for each generated track. Above, we generate a drum track with three different density levels.

Iterative Generation



MMM allows for iterative generation. Above, we progressively resample portions of a piano track.