

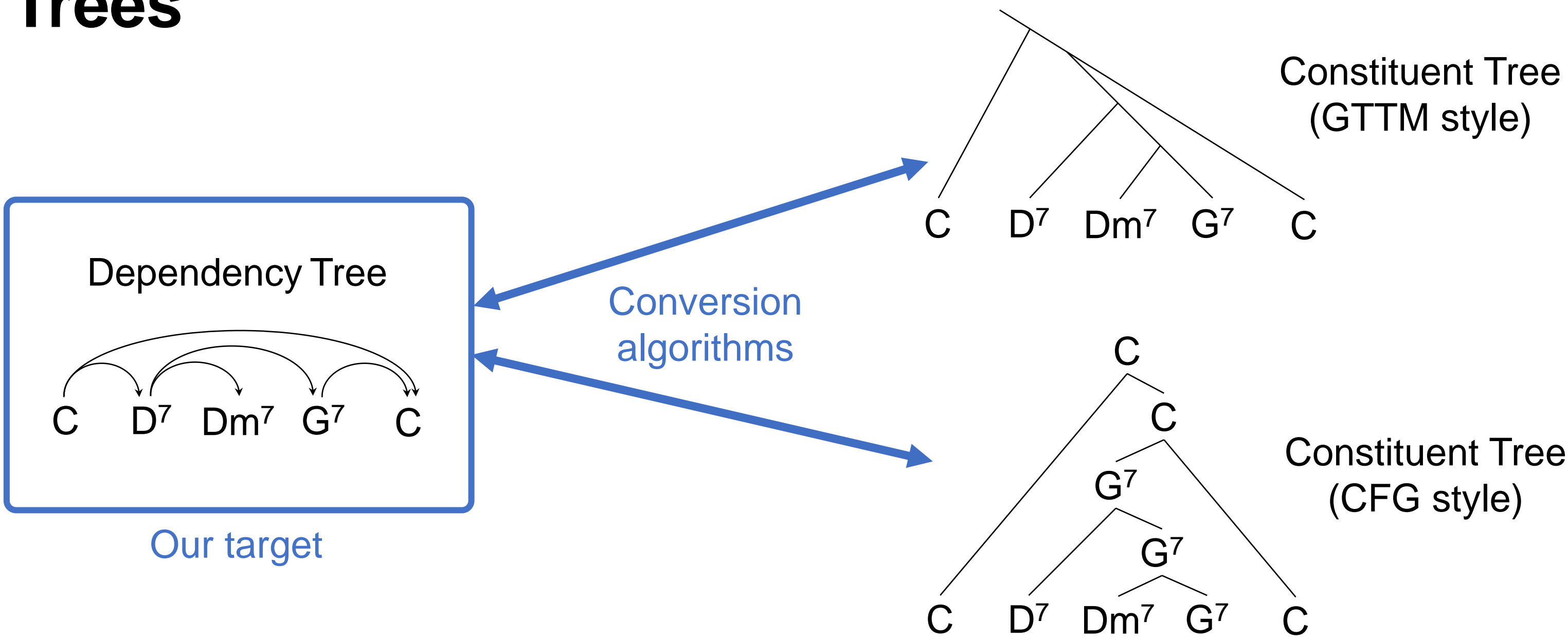
# PREDICTING MUSIC HIERARCHIES WITH A GRAPH-BASED NEURAL DECODER



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## Trees



## Data

GTTM time-span trees

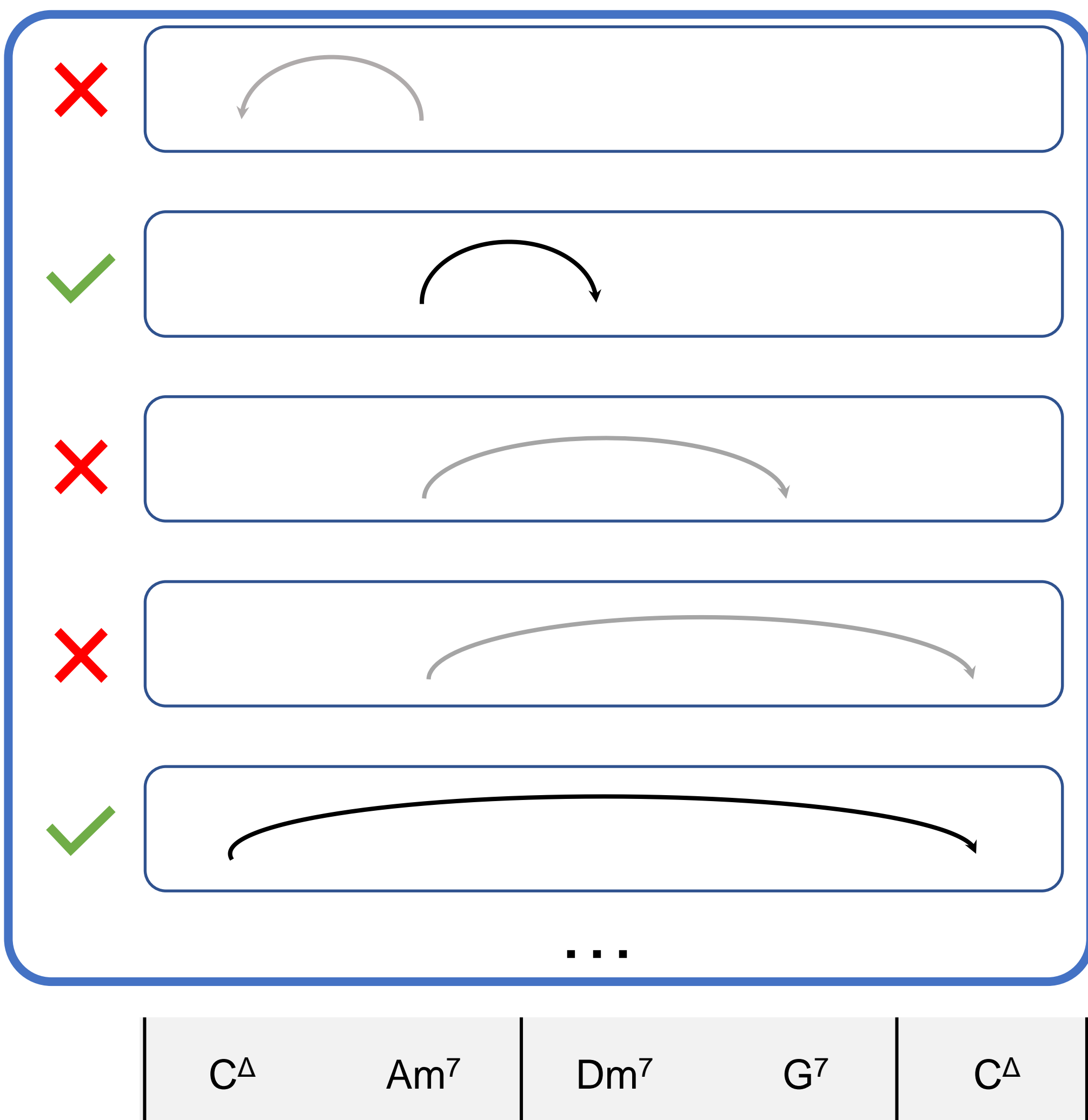
- On monophonic melodies
- 150 sequences, length 11-38

Harmonic Analyses

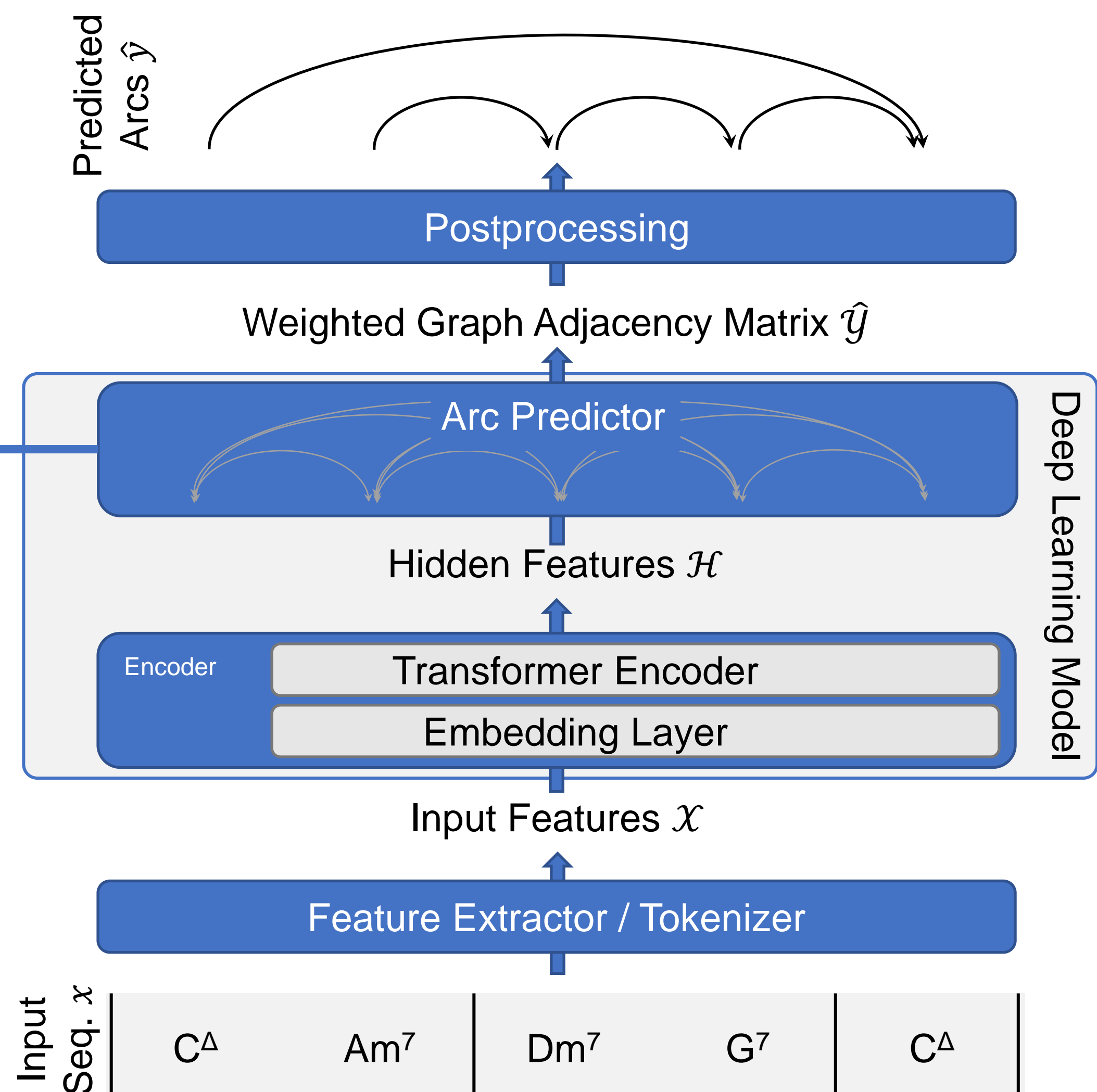
- on Jazz Chord Sequences
- 296 sequences, length 10-20

## Main idea

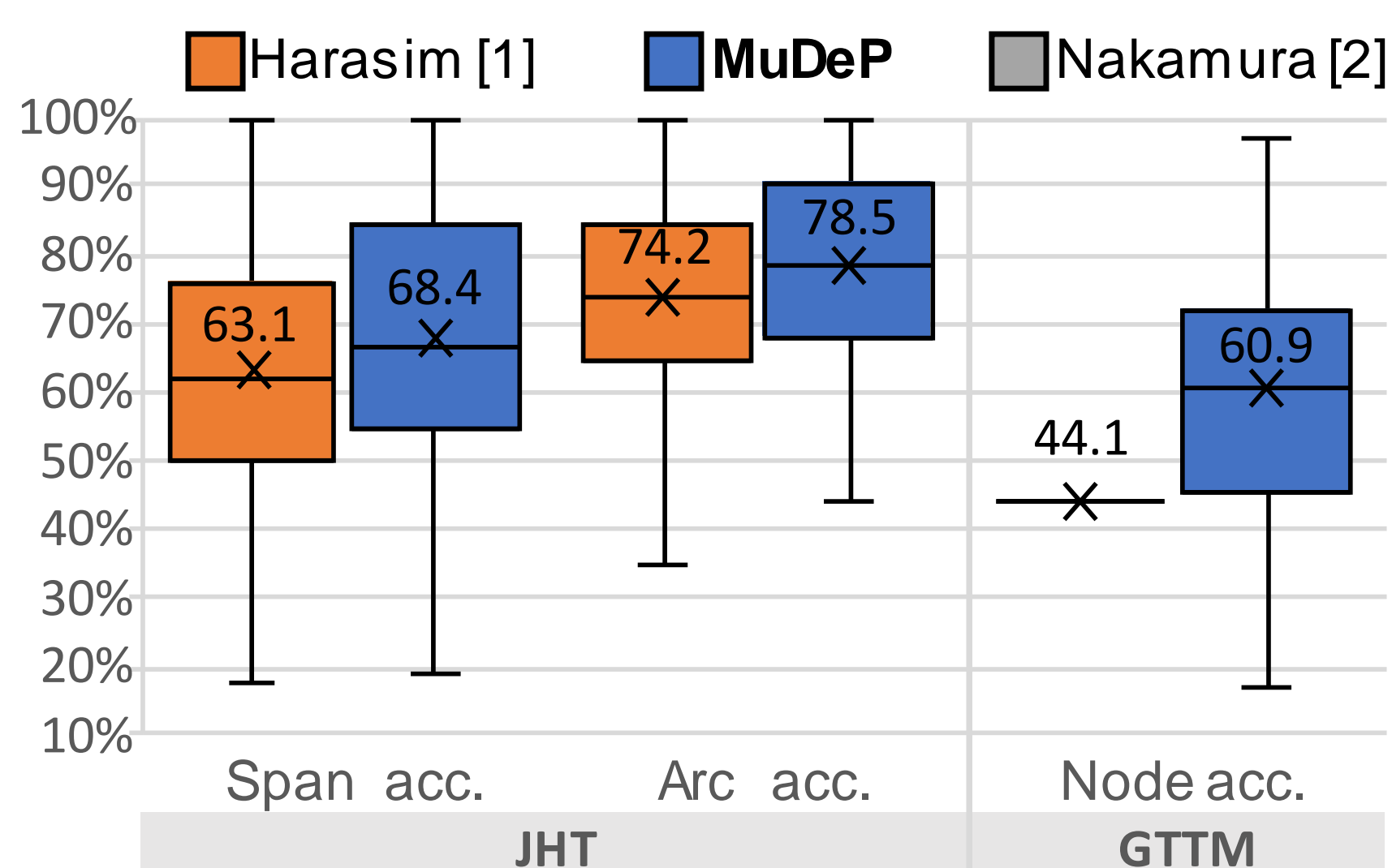
Set of pairwise arc prediction  $\leftrightarrow$  Tree prediction



## Network Model



## Performances



## Advantages

- Accurate
- Fast, Parallelizable (?)
- Handles Noisy Data
- Fits well into DL frameworks
- Works with multiple input features

Open-source code



### REFERENCES

1. D. Harasim, "The learnability of the grammar of jazz: Bayesian inference of hierarchical structures in harmony," Ph.D. dissertation, EPFL, 2020.
2. E. Nakamura, M. Hamanaka, K. Hirata, and K. Yoshii, "Tree-structured probabilistic model of monophonic written music based on the generative theory of tonal music," in Proceedings of the International Conference on Acoustics, Speech and Signal Processing (ICASSP). IEEE, 2016, pp. 276–280.
3. M. Hamanaka, K. Hirata, and S. Tojo, "Musical structural analysis database based on gttm," in Proceedings of the International Society for Music Information Retrieval Conference (ISMIR), 2014, pp. 325–330