

Connecting Medieval Chant Traditions: A Comparative Analysis

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Before 1100 there were several liturgical monophonic chant traditions in Europe, prominently Gregorian chant as preserved in hundreds of manuscripts since the Carolingian period. Other traditions from which diastematic (pitch-readable) notation has been preserved include: Milanese, Old Roman, Old Beneventan, and two dozen of Old Hispanic chants. An oral survivor of Old Hispanic chant is preserved in the Cisneros Cantorales, which were notated around 1500. Thousands of early Old Hispanic chants, however, have only been preserved in traditional neumatic notation, notably in the León antiphoner (tenth century). This notation only encodes the number of notes per syllable text and usually whether the melody goes up or down. We collected and digitized the most extensive chants of all these traditions respectively in GRE, MIL, ROM, BEN, HISA, CIS and LEO. The first six in pitch readable notation, LEO only in countour notation.

In previous studies [1,2], we found that a computational language model was capable of distinguishing the melodic traditions with near perfection. We also found that such models were able to distinguish contour based traditions using melisma lengths, although with lower accuracy [3]. Our current aims are to understand this success and to further explore the relations between these traditions. The language model is based on 5-grams, which suggests that the melodies from the various traditions differ significantly at the local scale of short note sequences. By inspecting the trained model, we extract a set of distinct patterns for each tradition and examine the occurrences of these patterns in detail to understand the melodic peculiarities of the traditions. As a next step, we construct a hierarchical clustering and explore the relations among the traditions. This revealed relative separated positions of ROM, BEN and CIS compared to a cluster comprising GRE, HISA and MIL.

[1] Peter van Kranenburg and Geert Maessen. “Comparing Offertory Melodies of Five Medieval Christian Chant Traditions”, *18th International Society for Music Information Retrieval Conference*, Suzhou, China, 2017.

[2] Geert Maessen, Peter van Kranenburg and Darrell Conklin. “Het Mozarabisch melos en andere tradities”, in: Geert Maessen. *Heimwee naar wat nooit is geweest - Bespiegelingen over het Gregoriaans*, Gregoriana Amsterdam (2023), pages 86-108 and 224-245.

[3] Geert Maessen and Peter van Kranenburg. “A Non-Melodic Characteristic to Compare the Music of Medieval Chant Traditions”, *8th International Workshop on Folk Music Analysis*, Thessaloniki, Greece, 2018.

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