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Daniel T Shanahan* (dshanahan@lsu.edu), 103 School of Music, Louisiana State University, Baton Rouge, LA 70803. *A Diachronic Approach to Musical Prototypicality with Dynamic Time Warping*. Preliminary report.

As musical styles change, ideas that were once common begin to wane into obscurity as new ideas emerge. Music theorists have employed many paradigms to discuss this, including “arcs of prototypicality”, in which musical ideas begin to coalesce as they are used more often, and splinter over time into new ideas. This study employs a newly-curated dataset of more than fifty thousand melodic themes to examine the possible arcs of prototypicality that occur in the 17th and 18th centuries. The corpus was derived from the RISM incipit database, and has been curated to include composer birth and death dates, as well as nationality. Specifically, it employs the time series alignment algorithm known as dynamic time warping (DTW), in which distances of feature vectors are calculated and aligned independently of the time series. While other distance metrics might be useful in approaching this problem (e.g. Levenshtein), the ability of DTW to perform distance measurements while aligning the features with time series make it particularly suitable for aligning and comparing musical ideas over time. This paper will discuss the benefits of DTW, and will provide a comparison of the results of multiple distance metrics, and their ability to compare melodic relationships in large corpora. (Received September 20, 2016)