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**Godfried T. Toussaint\*** (gt42@nyu.edu), New York University Abu Dhabi, Saadiyat Island, P.O. Box 129188, Abu Dhabi, United Arab Emirates. *Phylogenetic Analysis of the Ancient Greek Paeonic Rhythmic Forms*. Preliminary report.

There are very few documented examples in the history of the evolution of musical rhythm that provide evidence of the gradual development across centuries, of a prototype rhythm evolving to a set of its variants. The ancient Greek rhythmic paeonic (quintuple time) genus discussed by Aristotle and Aristoxenus is one such notable example, thus providing a unique and much needed opportunity to test the evolutionary efficacy of the mathematical phylogenetic tools available. A paeonic rhythm has durational ratio 2:3, and can be notated succinctly using binary sequences of five symbols in length such as [x - x x -], where each symbol denotes a unit of time, the symbol 'x' denotes a sounded pulse (note onset), and the symbol '-' denotes a silent pulse (a rest). The rhythm [x - x x -] is the root of the paeonic genus, and is called the cretic. M. L. West documents seven variants of this prototype rhythm that appeared gradually over a period ranging from the 7th Century BC to the 2nd Century AD. Here a phylogenetic analysis using the tools available in the SplitsTree software package provides mathematical evidence that supports the evolution of the paeonic genus documented by M. L. West. (Received August 25, 2015)