Jack and Jill project in autonomous music composition

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Jack & Jill is 10 yr old project to develop a high level fully autonomous composition system that composes large-scale, strikingly new-sounding music, in complex formal flow, inventing styles of its own. The majority of development time was a chaotic rattle in search of solid computational principles that predict the way that music goes, or could reasonably go. Endless effort was expended on foundational levels: Happy Birthday went through a million structural descriptions before anything like a cogent philosophy of musical shape emerged. A breakthrough in rhythmic analysis, demonstrating a pattern algebra possibility for describing the rhythm of folksong, led to a new theory of the structure of music as a hierarchical containment system of patterns with patterned deviations from the simplest possible patterns. A basic computational principle of music, then, consists of orderly relations to base simplicity -- to "canonical" patterns.

The Jack system is a generator of structure of this kind, and the Jill system is an analyzer: it can generate analyses from raw note data. Jill does not quite yet operate in conjunction with Jack: when conjoined, we hope that the results will continue to be propitious.

The entire theory of operation is essentially new, demonstrating, contrary to a popular faith, that it is still possible to think about music in a new way. However, the social consequences of a fully achieved musical AI are likely to be extremely complex: there is a deep basic question concerning the responsibility of theorization, given the effects it will surely bring about, and how that shapes theorization itself.