In *Preliminaries to Speech Analysis* (1951) Jakobson, Fant, & Halle speculated that the rhythmic structure of an individual's native language might influence the way s/he hears non-linguistic rhythmic patterns. To date, however, there have been no convincing data to support this claim. To address this issue, we have examined the perception of one aspect of rhythm (grouping) by native speakers of English and Japanese, languages with distinct rhythmic structure. We constructed simple sequences of tones alternating in either amplitude (loud-soft), pitch (high-low), or duration (long-short). Non-musician listeners were asked to indicate their perceptual grouping of tone pairs (e.g., loud-soft or soft-loud) and the certainty of their judgment. Native English speakers in San Diego and native Japanese speakers in Kyoto participated, each responding to a total of 32 stimuli. We found a dramatic difference between English and Japanese speakers in the perception of duration sequences: Japanese speakers preferentially chose a long-short grouping, while English speakers strongly preferred a short-long grouping. In contrast, no marked differences were seen in the other conditions. We propose that experience with the rhythmic structure of one’s native language creates perceptual biases that influence non-linguistic rhythm perception. Specifically, we propose that the perceptual differences we observe reflect different durational patterns in English and Japanese words and phrases. We present evidence in favor of this hypothesis in the form of durational measurements of frequent disyllabic words in English and Japanese, and in an analysis of prosodic phrasing in the two languages. [Supported by Neurosciences Research Foundation.]