This study examines the historical development of the Kashmiri vocalic system—a topic yet to be explored in the published literature. Owing to a number of phonological changes resulting from vowel assimilation and final vowel deletion, Kashmiri has developed three contrasts in height in central vowels as opposed to a single central vowel in most Indo-Aryan languages. While prototypical cases of harmony are phonological, Kashmiri exhibits a morphophonological operation of assimilation whereby a high vowel of the suffix induces harmony on the vowel of the immediately preceding syllable. The change, triggered by a specific agreement suffix, plays an important role in the historical development of the Kashmiri vowel system which shows four contrasts in height and three contrasts in backness/frontness. The result of these and other historical changes is a larger vowel inventory with as many as fifteen phonemic vowels as opposed to the typical Indo-Aryan ten-vowel system. In contrast with some other languages exhibiting vowel harmony which affect all the syllables, the domain of harmony in Kashmiri is restricted to the stem-final syllable of the prosodic word showing a high degree of harmony with respect to the features [+round] and [+high] of the suffix. The requirements hold largely to both underived stems (i.e., words consisting of single morphemes) and derived words (i.e., words consisting of a stem and a derivational suffix). Thus, the vowel of an inflectional suffix assimilates the final syllable of the stem. The change is strictly morphophonemic, triggered by the agreement suffix containing a gender marker.