Fig. 12. The SplitsTree with the Hamming distance.

the notion of center. For example, the *Hamming Center* of a set *S* of binary strings is defined as a binary string that minimizes the maximum Hamming distance to all strings in *S* (GASIENIEC *et al.*, 1999). If the search for a minimum is restricted to the set *S* then the resultant string is the *Set Hamming Center* of *S*. The reader may verify that the *Son* pattern is the *Set Hamming Center* of this family of six rhythms. As a second example, consider the *Hamming Median* of a set *S* of binary strings, defined as a binary string that minimizes the sum of the Hamming distances to all strings in *S* (JIANG *et al.*, 2003). This measure is sometimes also called the *generalized Hamming* median. In addition, if the search for a minimum is restricted to the set *S* then the resultant string is the *Set Hamming Median* of S. The reader may verify that the *Son* pattern is also the *Set Hamming Median* of this family of six rhythms. The Hamming distance between the *Son* and each of the other rhythms is equal to *two*. The tree in Fig. 12 also contains one *ancestral* node with *Son*, *Soukous*, *Bossa-Nova*, and *Gahu* as its offspring, each with a Hamming distance of one from the ancestral rhythm. This ancestral rhythm is the four-beat pattern [x . . x . . x . . . x . . . . .]. Note that all four offspring contain this pattern, and they differ only in the location of the last (fifth) beat that falls in positions 12, 13, 14, and 15, for the Soukous, *Son*, *Bossa-Nova*, and *Gahu* rhythms, respectively. Finally, it is worth observing that there is no unique pair of candidates that represents the two most different rhythms.

5.1.2 The Euclidean interval vector distance

For the Euclidean interval vector distance the splits graph shown in Fig. 13 is tree-like with a good fit of 82.3%. The center of the graph is the *Son*, but it does not have direct paths to all other rhythms. The path from *Son* to *Gahu* is via the *Bossa-Nova*. Here there are two rhythms, *Gahu* and *Soukous*, that are clearly the most dissimilar pair. Furthermore, *Gahu* is the most distinct from all the others.