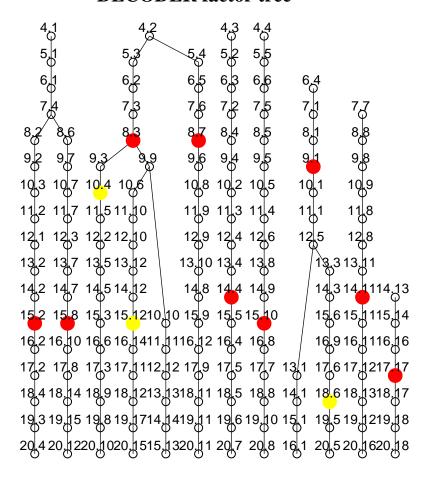DECODER factor tree