CSE 490 GZ
Assignment 5
February 22, 2002

1. Consider 2-dimensional vectors with each coordinate having 16 values, 0 to 15. Let our training set be \( X = \{(0,0), (1,1), (2,2), \ldots, (15,15)\} \). (Note: let’s assume that the rounding function rounds down on .5, for example round of 6.5 is 6.)

(a) Starting with vectors \( c(0) = (0,7) \) and \( c(1) = (15,7) \) run the GLA algorithm until there is no decrease in distortion.

(b) What happens to the GLA if the starting vectors are \( c(0) = (0,15) \) and \( c(1) = (14,1) \)?

(c) Run the GLA algorithm with the splitting strategy. When splitting a codeword \( c \), create a new codeword \( c' = c + (1,1) \).

2. Decode the following using the Burrows-Wheeler transform algorithm. \( L = baaaaaaa \) and \( x = 3 \). In the process compute the mapping \( T \) and it use in the decoding.