

Fig. 4.1 (a), (b) Regions representing lakes in two satellite images.

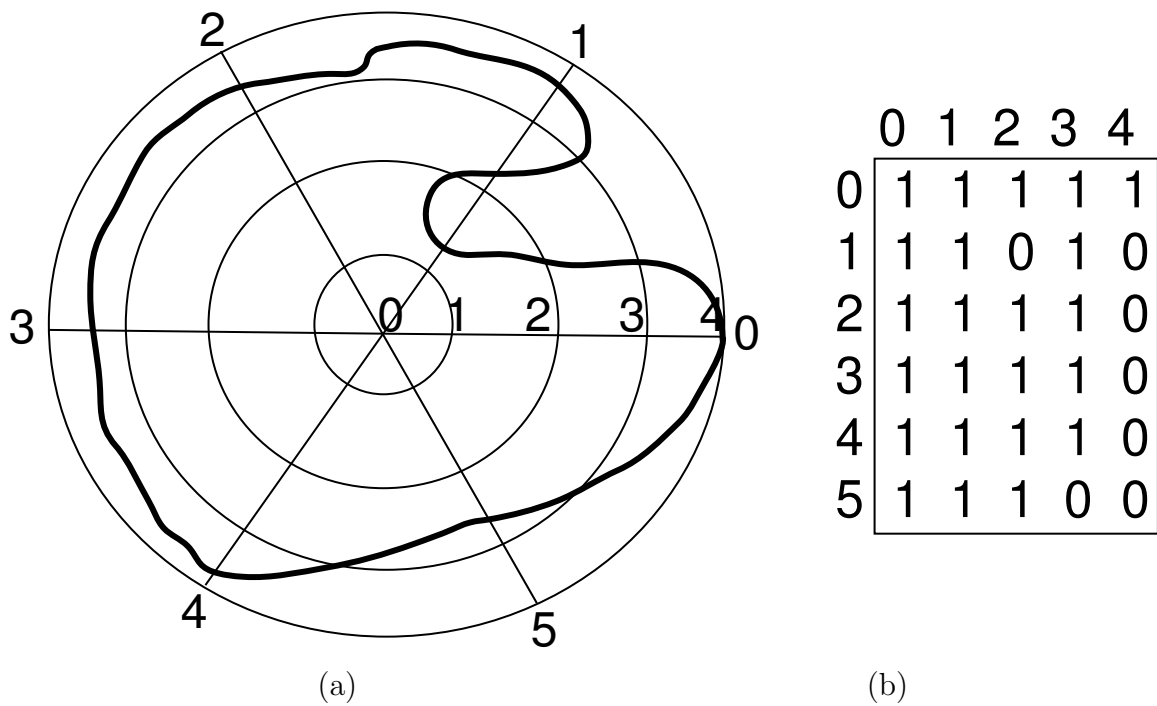
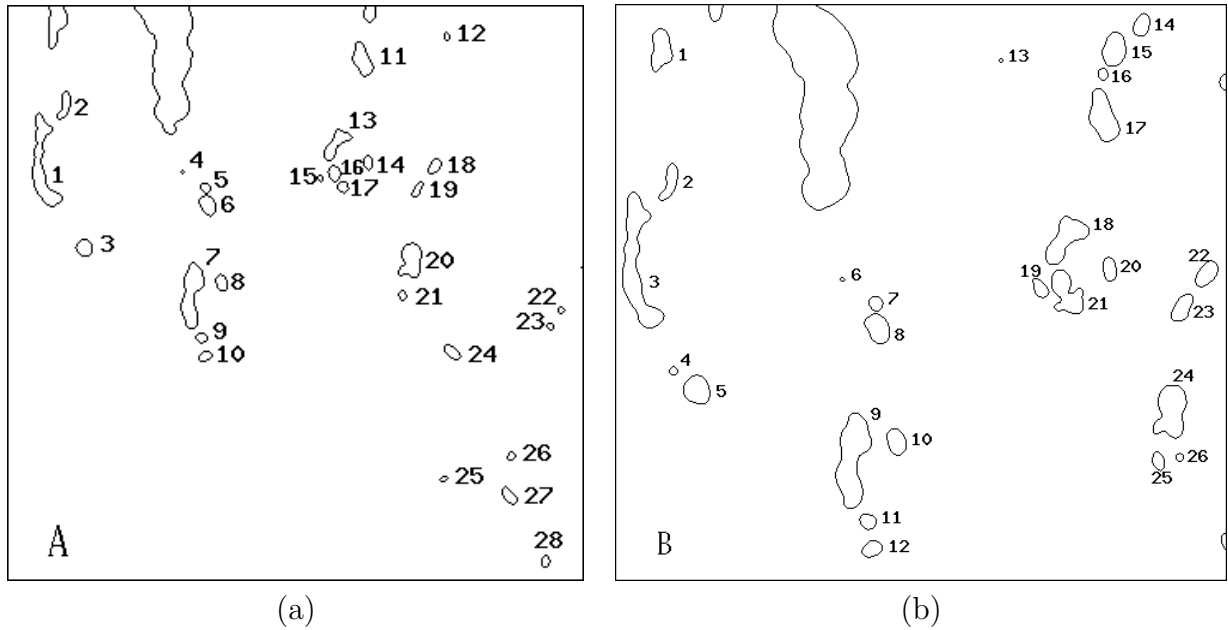
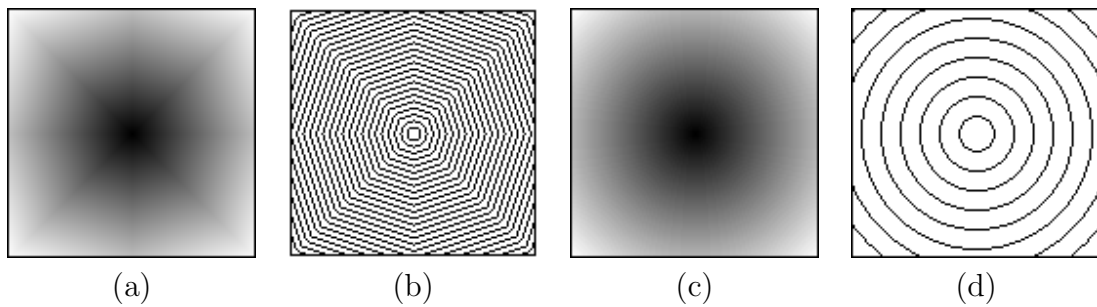


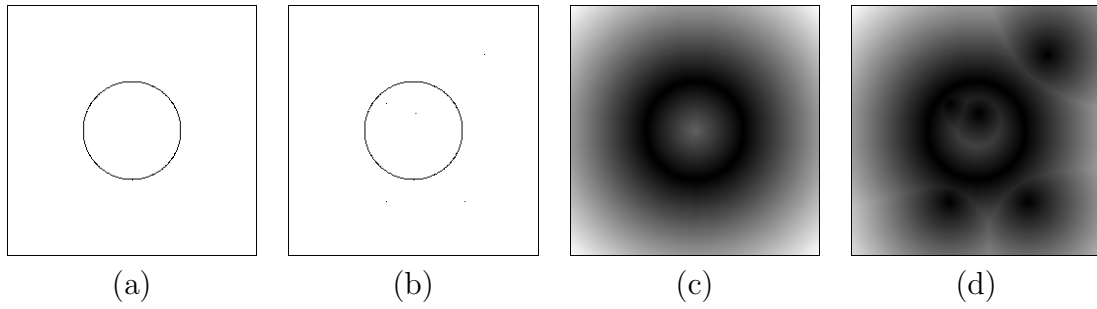
Fig. 4.2 (a) A shape and (b) its shape matrix.



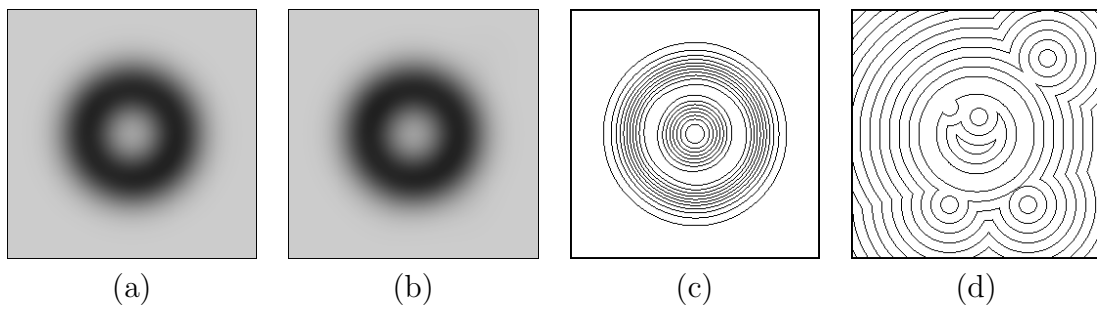
**Fig. 4.3** (a) Regions in the reference image. They represent the labels. (b) Regions in the sensed image. They represent the objects. By assigning unique labels to the objects, correspondence is established between the regions in the images. Regions that are partially outside an image are not used in the labeling process.



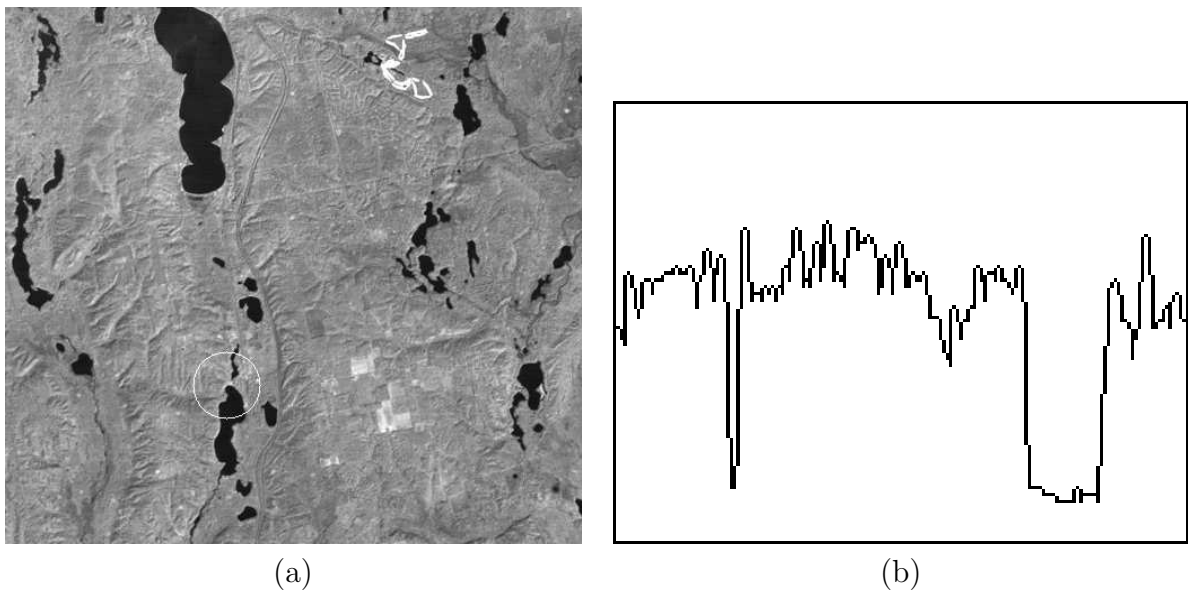
**Fig. 4.4** (a) Distance transform of an image containing a single object point at its center by the method of Borgfors [40]. (b) Isovalued contours of the distance transform image with 10-unit intervals. (c) True Euclidean distances of the image with a single object point at the center of the image. Displayed intensities show scaled distances for better viewing. (d) Isovalued contours of the Euclidean distance transform with 10-unit intervals.



**Fig. 4.5** (a) An image containing a circle. (b) Same as (a) but with five added randomly points. (c), (d) Exact Euclidean distance transforms of (a) and (b), respectively.



**Fig. 4.6** (a), (b) Distance transforms of images 4.5a and 4.5b by Gaussian convolution. (c), (d) Isovalued distances of 4.6b and 4.5d, respectively.



**Fig. 4.7** (a) A ring centered at a landmark. (b) The sequence of intensities forming the ring counter-clockwise starting from the rightmost pixel on the ring. The horizontal axis shows the pixel positions along the ring and the vertical axis shows the intensities of the pixels.