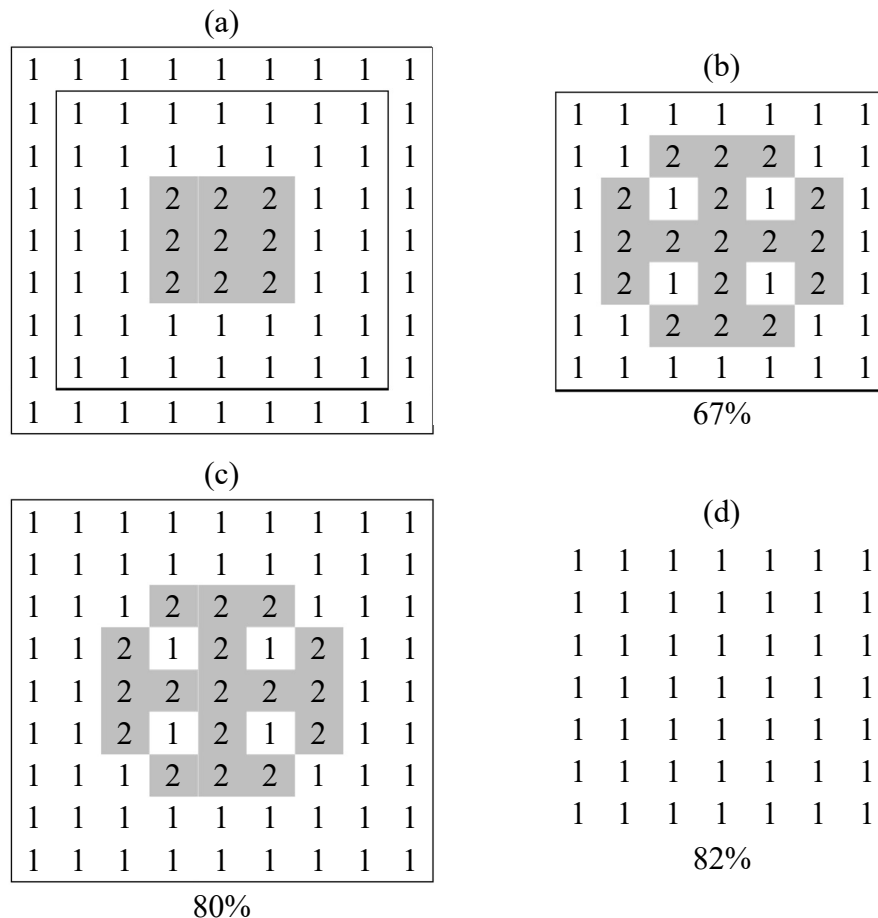


- Remote Sensing Accuracy Assessment

Image classification is routine in a variety of disciplines, and analysts rely on accuracy metrics to evaluate the resulting maps. The most frequently used accuracy metric in Earth resource remote sensing is overall accuracy. However, the inherent properties of this accuracy metric make it inappropriate as the single metric for map assessment, particularly when a map contains imbalanced categories.

The overall accuracy is the percentage of cases (e.g., pixels or sampling units) correctly classified. If only a single accuracy metric is reported for a classification map, it is likely to be the overall accuracy, as shown in an overwhelming preponderance of published research in the field of earth-surface detection and mapping. We refer to this phenomenon as “overselling overall accuracy,” meaning that map handlers overemphasize the importance of map-level accuracy.



(1): reference, (b): the mapping area is defined by the 7×7 box and  $OA = 33/49 = 67\%$ , (c): the mapping area is expanded to the 9×9 box and  $OA = 65/81 = 80\%$ , and (d): every pixel is classified as category 1, resulting in  $OA = 40/49 = 82\%$ .