On thinning spatial polygons

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We present a case study that deals with the thinning of spatial polygons. This operation is particularly useful when certain details can safely be omitted: for instance, when colouring a map it might well be sufficient to use simplified boundaries for administrative regions, i.e. boundaries that are just some approximation of the official ones. One advantage is that the reduced number of points helps to reduce the size of the graphical output. However, thinning spatial polygons is far from being trivial: the shared boundaries of neighbouring polygons might be treated differently and thus the resulting map may contain slivers. We propose a method that is similar in spirit to the thinnedSpatialPoly function of the maptools package. The main idea of our approach is to decompose each spatial polygon in such a way that it consists of various segments of its boundary, some shared some not. Each segment is simplified as it stands and then the information obtained during the decomposition is used to reconstruct the spatial polygons object.