Neighbourhood

The term neighbourhood is used for everything that is close, nearby, contiguous. Distance as measure of separation, of interval between two places may not be dissociated from the definition of a neighbourhood. The neighbourhood reaches its limit point (immediate neighbourhood) when the spatial units are contiguous, adjoining. A neighbourhood is always expressed into a metric space.

The measure of topological relations may be used to express contiguities between objects or places which are close to each other, either because they have a common border if they are cells or zones, or because they are linked by a line if they correspond to nodes in a network. In each case, contiguity is defined in a binary way (for a given pair of places, it is noted 0 if the objects or places are not contiguous, 1 if they are). Information on contiguities may be noted in an adjacency matrix or summarised by an adjacency graph.

These measures are only apparently simple in particular when contiguities are measured with respect to a grid. In this case, what is called common border must be defined (side, or angle, or also angle and side). Besides, in order to take account of the fact that separate cells nonetheless appear close enough to maintain possibilities of contact or interaction, it is possible to define contiguities of different orders (from order 1 to order n; for example at order 2, contiguity between cells exists if, and only if, exactly two borders are crossed when going from one to the other through the shortest path).

Those contiguity measures correspond to topological measures of distance. By generalising, the neighbourhood may be evaluated through any measures of distance. In the same way as the previous approach which relied on the definition of contiguity orders, to delineate a neighbourhood will require to define a distance threshold. This threshold will be empirically determined or identified on a spatial interaction function which, for a given phenomenon, describes decrease of interaction going along with increase of distance to the object or place whose neighbourhood one tries to define (gradient).

The notion of neighbourhood is rooted inside all approaches aiming at measuring either spatial autocorrelation, or spatial interaction. It is present by construction in the notion of discontinuity.

see also: contiguity

Bibliographie