Non topological graphic data input for Geographical Information Systems. Methods for cleaning and rebuilding the geographic entities and their links with attribute data.

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It has been widely used the non topological graphic data coming from popular CAD softwares, as input for vector oriented GIS. The main reason for this points to the fact that CAD softwares are cheaper and easier to learn and use. Another strong reason is that most organizations prefer to improve GIS "culture" starting with CAD digitizing or scanning existing maps, and going into an usually painful automatic or semi-automatic vectorization, in CAD environment as well.

After some time playing around with non topological graphic files, the organizations realize that is time to go into real GIS business. After a good search in the software market, a particular GIS is chosen, usually because of its capacity of reading CAD files. Then the real problems start. The list is long, and goes from difficulties in building a seamless cartographic base; restriction in the number of shape points allowed in an edge line; links without origin or destination nodes; limitations in the number of layers; hatching that came as boundaries; not permitted colors; single points wrongly defined as lines; open polygons; and usually thousands of entities that came into the GIS without a proper identifier string or number; just to mention a few.

In this paper, some suggestions are given to those whom are dealing with graphic data input in a non topological way and are planning to migrate into a fully topological GIS environment. A methodology to clean and rebuild the geographic entities is presented, with emphasis in the way of linking graphic and existing attribute data.

Finally, it is showed another technique of cartographic update, "vector over vector" as it was called. It is recommended when existing vector maps were not topologically created, or they are full off "dangles", "gaps" and duplicated boundaries, or both. For most low-cost GIS packages, this kind of files are practically useless, being necessary to repair in their native format, or digitize them again. We propose to use all the geometry of this kind of file as a background layer, to digitize properly (keeping the topology) over it, in an "empty" polygon layer using just a "mouse" and the computer screen (heads up digitizing). One of the main reasons for the success of this procedure is that the whole work is done in the same (and convenient) coordinate system. The advantages of this methodology has been proved to rebuild polygon files, generated in a CAD system for further GIS applications.