MRDB and Generalisation

Brain storming on Multiple Representation and generalisation
Monday 8 of July 02. About 15 persons. Reporter : Anne Ruas

NMA view points :

NMA produces different data bases and maps.
Example of Quebec :
    1:25K, 1:100K; 1:250K; 1:1M; 1:8M.

Today : updating process is slow, data bases are incomplete and not
coherent one to another.

The aim would be :
• either to derive DBs from an accurate one by means of
generalisation process (figure 1, left)
• or to use existing DBs, to ensure a minimum coherence btw DBs and
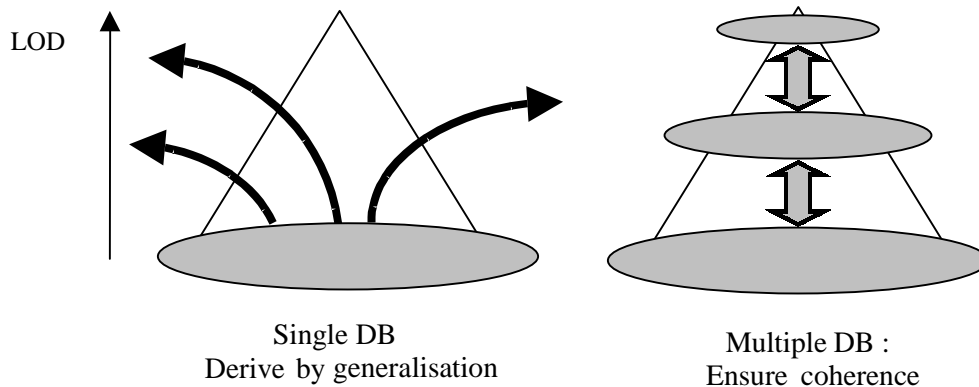to propagate updating from one data base to the others.

figure 1 : deriving DB or store Multiple DB

When different data bases exist (figure 1, right) , they have
different levels of detail (LOD). Objects and groups of objects
should be in relation : within one LOD and between LOD, in order to
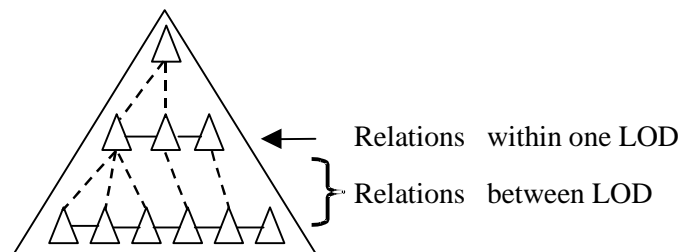ensure geographic coherence and to allow updating process (figure
2).

figure 2: ensure coherence between objects at different LOD

When data bases are coming from different sources, data matching is
used to instantiate the relationships between objects. When data
bases are produced by generalisation (e.g. 1: 25K to 1: 100K in
Quebec) identifiers between objects should be preserved.

Data structures :

If a MRDB is chosen, what should be the best data schema (classes, relationships)?
1- Objects could hold different representations (see Vangenot, Parent, Bedard) OR each object could have a single LOD but be related to other objects (links btw objects)
2- It is not sure that the data schema to facilitate user access (datawarehouse) is the best structure for MRDB management (coherence, updating, derivation). In NMA the schemas for data storage, data access and data updating are not always identical, it might certainly be the same for MRDB.

Differences between DB :

1- What is the 'distance' between data bases in terms of LOD? How 'big' is a gap btw LOD ?
2- Which scale range maps can be easily derived from a single data base ? For example 1: 25K and 1: 50K could be derived from a single LOD DB, but 1: 100K scale map would require a new DB.
3- Are there always relationships of aggregation and composition between LOD ? Are all information contained at one level ALWAYS represented at a higher LOD ? (certainly not)
4- One of the difficulty is coming from the under-specification of DB with low LOD (whenever DB are not exhaustive)

GIS or DBMS ?

1- Are GIS adapted to hold MR ?
2- Do we have to use GIS **or** to store MRDB on DBMS such as Oracle and to manipulate a single LOD on GIS ?

Gap of understanding / choice :

• Btw GIS functionality and Geographic needs : GIS are still not adapted to hold the principles used by geographers that work for years on the existence of different LODs

• Btw NMA production and User needs : some bad priority are taken by NMA. Today users need more actuality than positional accuracy: updating is essential.

Synthesis :
1. Data matching is essential to create MRDB : no flexible tool exist on GIS. Some conceptual aspects of matching should be more studied.
2. On line generalisation is important but seams today complex
3. MRDB : what is the appropriate schema : for storage, for updating, to facilitate user access ?
4. When MRDB will exist some appropriate GIS functions based on MR will become necessary (such as changing LOD inside a process).