Report on the breakout session

IMAGES. VECTOR and SURFACE GENERALISATION –
HOW CAN IT BE LINKED ?

This breakout session was attended by a good number of workshop participants. The session started with discussions on common ground, mainly between image analysis and vector data generalisation. It was agreed that both areas are closely connected, since they deal with the same real-world objects and strive to interpret a mapping of these objects to images and maps, respectively. Also, both fields are complex and cannot be solved automatically in a general manner using state-of-the-art techniques.

The level of prior knowledge, however, is considerably different. As far as real-world objects are concerned, image analysis deals with highly implicit information and thus has to rely heavily on semantic modeling preferably in 3D, and sometimes derived in part from existing geo-spatial databases. Generalisation of the image as such is rather straightforward using scale space techniques, the same is not true for the generalisation of the employed scene models. This is an open research question and is in fact nearly identical to that of model generalisation in GIS.

In cartographic vector generalisation on the other hand, semantic information about individual objects is explicitly given, and aspects of human perception need to be taken into account. A large body of literature dealing primarily with geometric and topologic algorithms and virtually excluding semantic aspects exists. For a while discussions centred about including more semantics and context into cartographic generalisation, especially with additional demands like on-the-fly generalisation and visualisation on very small screens such as those available in personal digital assistants and mobile phones.

The group went on to talk about automation vs. semi-automation and thus the role of interaction. It was agreed that a human operator will be needed also in the future in both areas, especially for quality control and post-editing in any system to be used for practical work. Thus, systems should be designed with a view to semi-automation from the very beginning – although it was not clear how to achieve this in detail – and more attention should be paid to the development of intuitive and easy-to-learn user interfaces.

Due to lack of time, surface generalisation was not touched upon in any significant depth. It was only mentioned that surface information is a useful additional cue in image analysis and cam play a similar role also in cartographic generalisation. Surface generalisation is furthermore important in computer

graphics and is currently carried out using primarily geometric algorithms. It was mentioned that topology and semantics could play an increasing role also in this area in the future.

In summary, while in the breakout sessions only a few aspects of the broad topic were discussed, and the participants deliberately deviated from the given subject at various occasions to further explore some details, they felt that such exchange of ideas was fruitful and more co-operation between the two communities of image analysis and generalisation should be initiated, since many of the problems do in fact have a significant amount of common ground.

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