Sketch maps are highly subjective, however, sketch map drawn by one is successful in conveying the information to another thus implying that there exists an underlying commonality between them. With cartographic generalisation as a reference, we try to investigate such common generalisation patterns that people do while drawing sketch maps.

Various geospatial applications relies on sketch maps as input. These application requires overlaying the information created as sketch maps on a metric map by aligning spatial aspects such as topology of street networks, topology of city blocks etc between a sketch map and its corresponding metric map. But due to abstraction, the objects in sketch map do not have one to one correspondence with metric map, changing the spatial aspects significantly. Understanding the common generalisation patterns in sketch maps would greatly help to generate rules for automatic resolving of generalisation in sketch map alignment.

Nearly 100 survey sketch maps from different locations in Münster district of Germany, originally collected for a series of different experiments were manually analyzed.

Sketch map generalisation vs Cartographic generalisation
- An abstraction process that people do while reproducing a map from their memory.
- People choose certain features that they feel is important.
- Portray those features in sketch map based on their creativity and drawing ability.
- Low level generalisation (Single feature)
- Highlight certain objects based on relative significance.
- High level generalisation (Group of features)

Omission

Abstraction to show connectivity

Abstraction to show existence

Misplacement/Misconception

SKETCH MAP GENERALISATION

- Omission
- Collaps
- Amalgamation

The street segments S2 and S4 are disconnected in metric map whereas connected in sketch map.

A number of street segments in metric map - S3 to S9 is merged to a single street segment S7 in the sketch map due to the omission of dead end streets and streets connecting the houses.

The qualitative aspect considered is topology of street segment represented by Digraph relation algebra - 7.

OTHER GENERALISATIONS
Other cartographic generalisation such as geometric merging, simplifying, smoothing, symbolization etc can be witnessed in sketch maps as well, but we did not consider those types of generalization because these methods vary greatly from person to person.

FUTURE WORK
1. To analyze the effect of each generalisation type on the seven qualitative aspects used for alignment.
2. To develop standard rules for describing how a generalisation would affect the spatial relation between features.
3. To implement the developed rules in the SketchMap classifier tool - a tool to check the correctness of a sketch map.

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