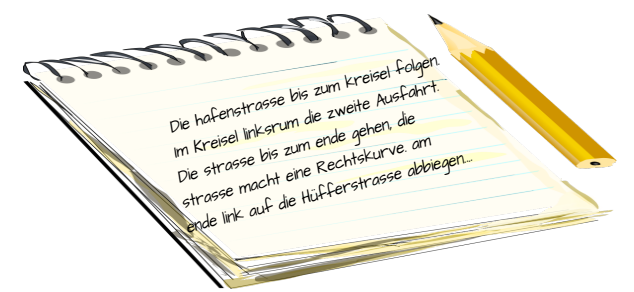


# Visualizing salient features in spatial descriptions

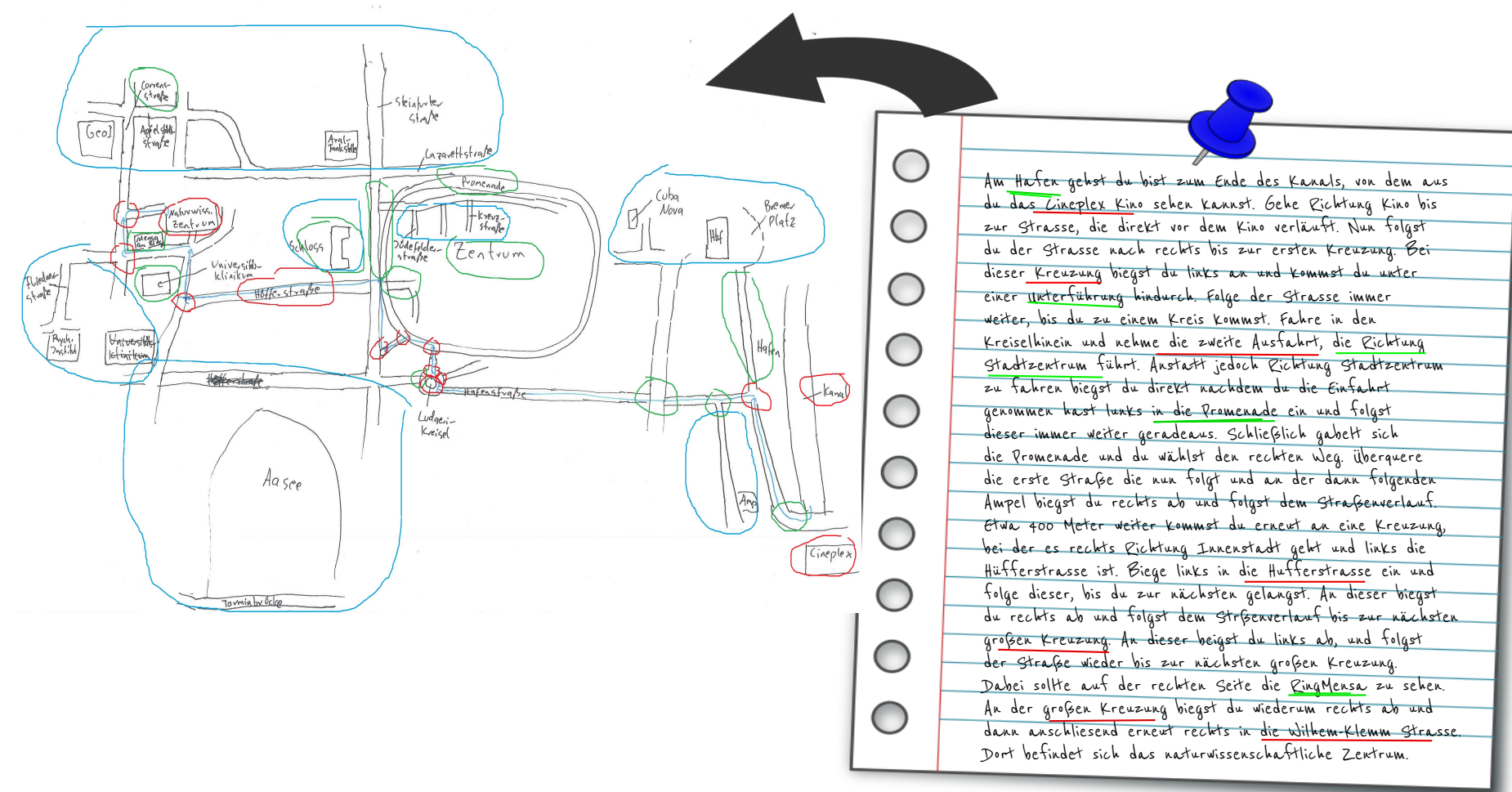
Vanessa Joy A. Anacta, Jakub Krukar, Mohammed Imaduddin Humayun, Angela Schwering  
Institute for Geoinformatics, University of Muenster  
[v.anacta, krukar, humayun, schwering]@uni-muenster.de



## Introduction

Someone new in the area asked you the route from A --> B. How do you describe the route with such varying level of familiarity? The process of describing an environment and a route through is mediated by a set of restrictions provided by the medium (verbal or pictorial), task and the level of knowledge. In this exploratory work, we demonstrate how the process of subtracting the 'necessary' information from descriptions can help identify all auxiliary but helpful elements for giving directions.

Fig. 1 Sample Sketch Map & Route Description



## Analysis

Similar to Denis' (1997) method in gathering megadescriptions to create the skeletal descriptions, we collected all the spatial features described in verbal descriptions and at the same time drawn in sketch maps. However, we did not omit any information but kept it in the analysis by separating the information which is necessary for the description to be correct from the auxiliary information. In this process, we visualize the landmarks, streets, and junctions that were both included along the route and off route as well as the added features with respect to their frequency.

Classification Process:

1. Identifying features which must be drawn in order for the description to be correct (Fig. 3)
2. Identifying auxiliary information located on route
3. Identifying auxiliary information located off-route
4. Aggregating total auxiliary features (both on and off route; Fig. 4)

Fig. 4 Auxiliary information in spatial descriptions



## Methods

PARTICIPANTS:

- 15 (7 females) between 21 and 33 years (M = 26.06 years, SD = 3.47)

PROCEDURE:

- a) Participants were asked to draw a map of the city of Muenster
- b) Then asked to draw a route from the Harbour (Hafen) to the Natural Science and describe the route they chose.

Fig. 2 All spatial features included in spatial descriptions

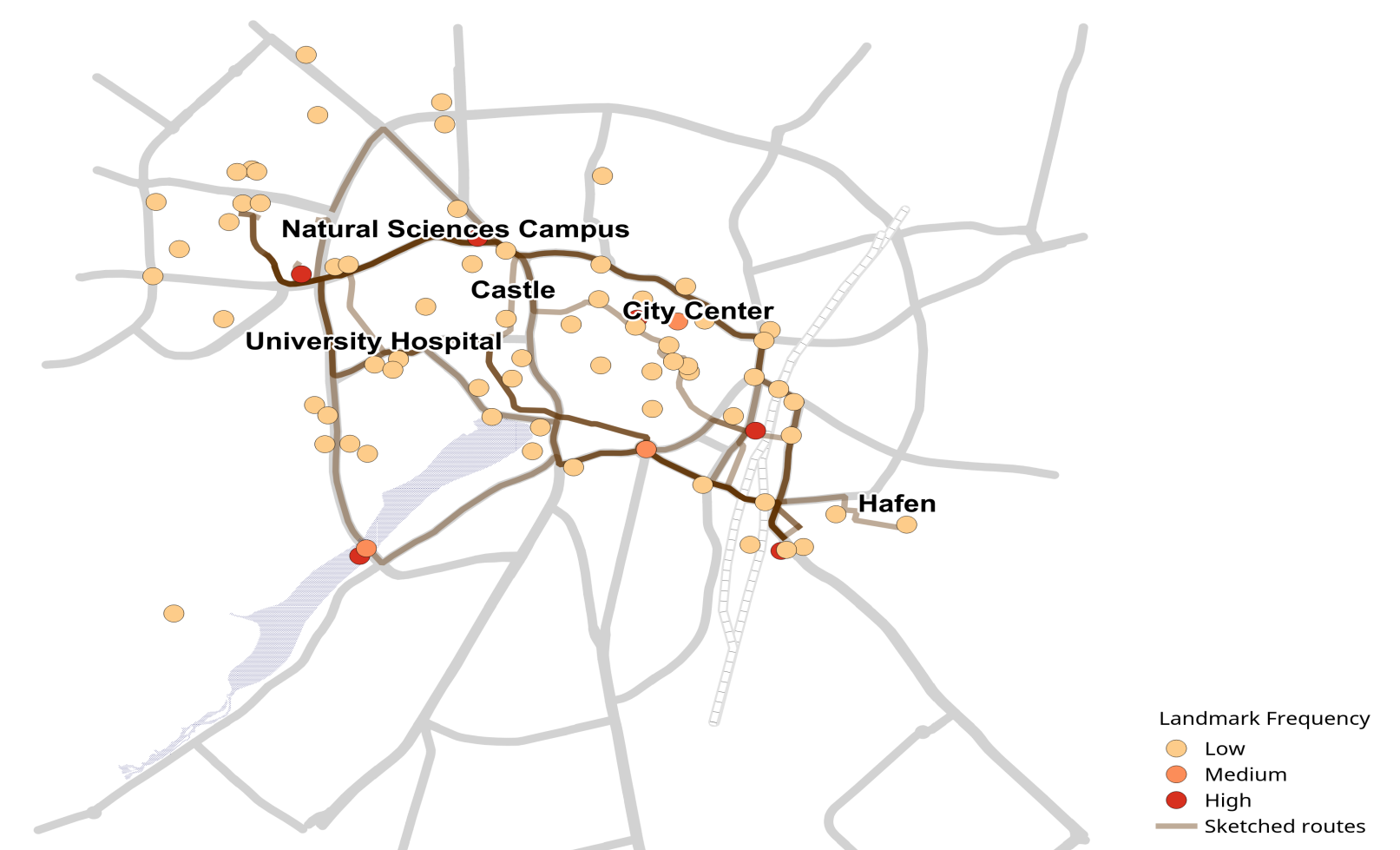
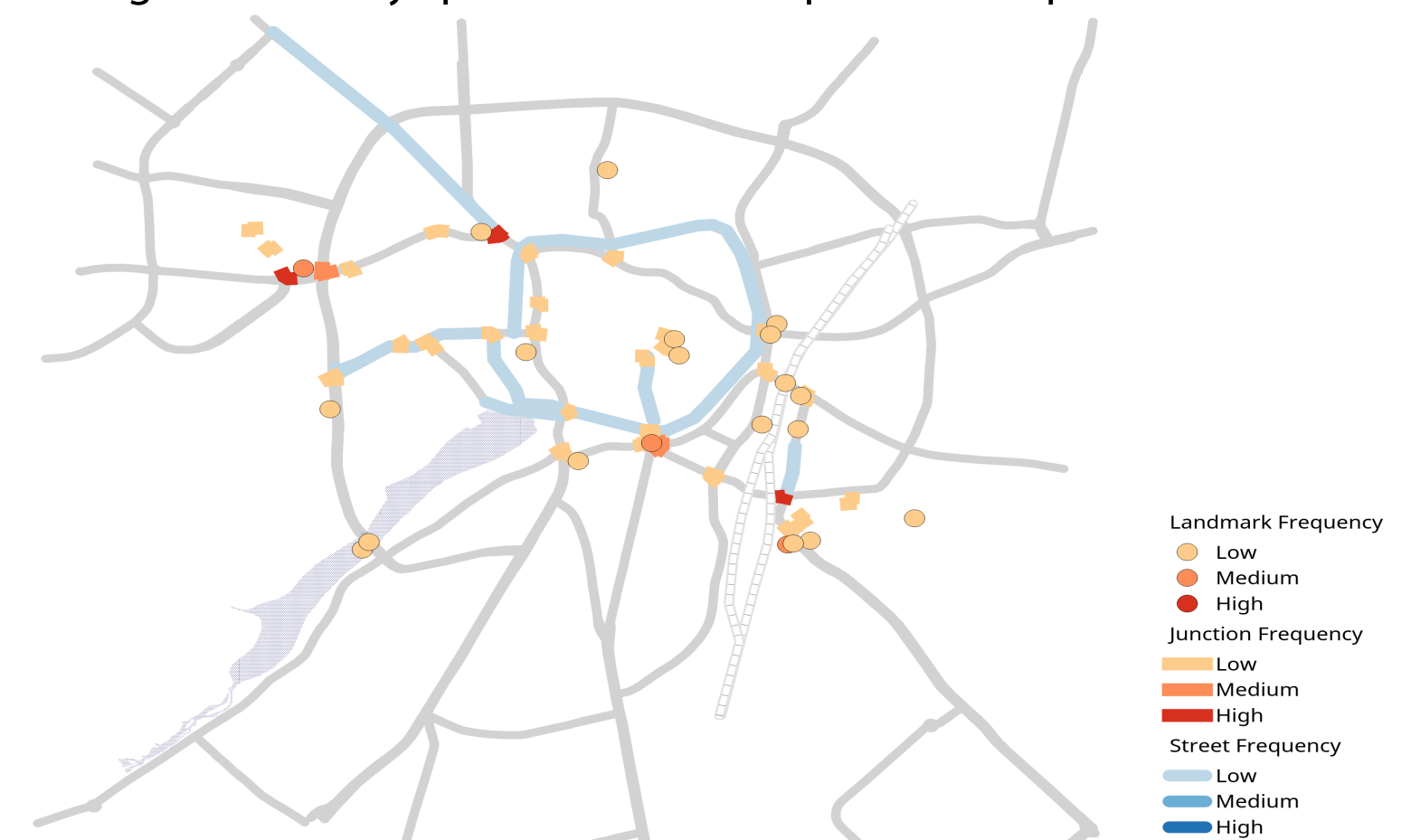


Fig. 3 Necessary spatial features in spatial descriptions



## Results

Features which are repeatedly included in route descriptions despite the fact these are not being required for the description to be correct seem to be dominated by:

- features identifying the city centre (like a ring bicycle path around it and the central square cathedral);
- large roads extending/radiating out from the city centre;
- junctions between main roads, even at the periphery of the used routes.

The use of landmarks beyond the minimum necessary cases (e.g. at the decision points of the routes) was heterogenous, with few exceptions (such as a large gas station in the north) remaining of particular interest for identifying orientation-supportive landmarks in the city.

## Conclusion

People choose and describe route instructions in different ways considering several factors. In this study, we demonstrate how the process of subtracting the 'required' information from descriptions can help to identify all the 'not required' information which nevertheless was included in the instructions. We argue that these 'auxiliary' information may be relevant for helping wayfinders understand the spatial layout of the place and in maintaining orientation.