Functional verbal scales in route instructions of wayfinding assistance systems

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The wording of route descriptions can influence the resulting mental spatial representation of the receiver as well as the remembered content: it has been shown that mentioning landmarks improves recall as compared to route instructions containing street names (Tom & Denis ,2003), and that landmarks with personal relevance to the receiver supported incidental learning (Gramann et al., 2017). Region perception can be induced linguistically, too: place names and city names can influence whether different places are perceived as belonging to a region (Schick et al., 2019). Landmarks and regions are two examples of spatial information supportive for wayfinding as well as orientation (Schwering et al., 2017).

In order to describe the contribution of different types of spatial information to tasks like wayfinding, orientation, and recall, Löwen et al. (2019) suggested the concept of functional scales: they are not defined by the ratio of real world distance and map distance, but by their function. They distinguished between the scales *intersection*, *neighborhood*, *city*, *region*, and additionally the *route overview scale*, a representation of the whole route on screen. The size therefore depends on the size of the respective route element.

We now extend the investigation of different functional scales from the maps to the route description and discuss the following questions:

How are different functional scales communicated verbally?

What kind of references are needed to convey information about the neighborhood and the region scale? As there are mostly no clear-cut visual boundaries, other features, e.g. a common function, like an industrial area, or a homogeneous appearance, like a characteristic building style, could be used.

How can we verbally induce cognitive processes during perception like chunking and aggregation of similar elements?

With a systematic analysis of the ways in which the different scales are referred to, we want to establish a taxonomy of the expressions used for each scale. Also, we want to investigate how the different tasks during wayfinding, like the identification of a decision point or the recognition of the general layout of the environment, can be supported by the route description.

References

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