Searching for the 'Right' Legend: The Impact of Legend Position on Legend Decoding in a Cartographic Memory Task

Dennis Edler, Julian Keil, Marie-Christin Tuller, Anne-Kathrin Bestgen & Frank Dickmann

Abstract

Map legends are key elements of thematic maps and cartographic communication. The question of how to style map legends is a topic which has often been addressed by cartographic academics and practitioners. Nevertheless, the question of where to position a map legend has only hardly been discussed. Principles of cognitive sciences allow the assumption that a legend positioned to the right of a map field can be read and decoded faster than a legend on the left side. This study investigates the impact of legend positioning on legend decoding. It involves an experiment based on a recognition memory paradigm and the registration of eye-movements. The results show that, in less time, a legend positioned to the right of the map field (compared to a left legend) can be decoded faster. The same accuracy of a cognitive representation of geographic space can be achieved in spatial memory.

Medieval Macrospace Through GIS: The Norse World Project Approach

Alexandra Petrulevich, Agnieszka Backman & Jonathan Adams

Abstract

The project 'The Norse Perception of the World' is building a digital infrastructure to facilitate interdisciplinary research on medieval worldviews as recorded in East Norse texts. It does so by collecting spatial material, i.e. attestations of place names and other location-based data from medieval vernacular manuscripts, early prints, and runic inscriptions from fictional, non-biblical, and scientific texts dated to before 1530, and providing free access to these spatial references through a tailored back-end MySQL database and an interactive end-user interface with mapping via Leaflet and Leaflet.markercluster. This paper discusses how geocoding can be problematic when applied to pre-modern materials, as the concept of space is a temporal and social variable, especially when dealing with ideas about places abroad. The geospatial visualization employed by the project has no ambition to represent a historically correct worldview as understood by medieval Scandinavians. Rather, it is an anachronistic tool for managing and obtaining an overview of the spatial references in East Norse texts.

Typology of Meteorological Weather Forecast Maps Printed in World Newspapers

Jaromir Kolejka & Hana Svobodova

Abstract

This paper presents the results of the analysis of more than 150 different printed newspaper weather forecasting maps, representing 91 global, national, regional and local daily news periodicals from 33 countries in 4 continents. The classification attention focused both on the character of the localizing background layer of the analysed maps as well as on the meteorological thematic layer. The results identify 12 types of background localizing maps and 47 used types of presentation of meteorological forecast information, only 19 of which were used repeatedly in more than one newspaper. All the findings were documented on comparable cartographic models. Conclusions suitable for practical applications are

demonstrated in the discussion.

Semantic Visual Variables for Augmented Geovisualization

Yun Li, Qing Zhu, Xiao Fu, Bin Feng, Mingwei Liu, Junxiao Zhang, Jun Zhu, Huagui He & Weijun Yang

Abstract

The human–cyber–physical world produces a considerable volume of multi-modal spatio-temporal data, thus leading to information overload. Visual variables are used to transform information into visual forms that are perceived by the powerful human vision system. However, previous studies of visual variables focused on methods of 'drawing information' without considering 'intelligence' derived from balancing 'importance' and 'unimportance'. This paper proposes semantic visual variables to support an augmented geovisualization that aims to avoid exposing users to unnecessary information by highlighting goal-oriented content over redundant details. In this work, we first give definitions of several concepts and then design a semiotic model for depicting the mechanisms of augmented geovisualization. We also provide an in-depth discussion of semantic visual variables based on a hierarchical organization of the original visual variables, and we analyse the critical influencing factors that affect the choice of visualization forms and visual variables. Finally, a typical application is used to illustrate the relevance of this study.

A Similarity-Based Approach for Improving the Efficiency of Drawing Spatiotemporal Point Features

Mingguang Wu, Guonian Lv & Kun Zhang

Abstract

The mapping of spatiotemporal point features plays an important role in geovisualization. However, such mapping suffers from low efficiency due to computational redundancy when similar symbols are used to visualize spatiotemporal point features. This paper presents a similarity-based approach to predict and avoid computational redundancy, which improves mapping efficiency. First, to identify computational redundancy, the similarity of point symbols is measured based on commonalities in symbol graphics and symbol drawing operations. Second, a similarity-enhanced method is proposed to comprehensively predict and avoid computational redundancies when mapping spatiotemporal point features. This approach was tested using two real-world spatiotemporal datasets. The results suggest that the proposed approach offers relatively large performance improvements.

Remapping Fictional Worlds: A Comparative Reconstruction of Fictional Maps

Primož Gašperič & Blaž Komac

Abstract

This article presents a quantitative analysis of fictional maps and their relation to historic maps from different periods. Fictional maps are maps of imaginary territories. This type of map is now common in fiction, but they arose relatively late, in the second half of the nineteenth century, and are considered an independent branch of cartography today. They stand out through the way they are published because they are component parts of books and not independent cartographic works, and therefore their creators are not cartographers but rather the authors of these books. Fictional maps are mostly subordinate to the story, but they serve to give a sense of historical authenticity and draw the reader into the story. Without networks of coordinates and with labels such as 'the end of the world', they are spatially indeterminate, but they establish a connection between the fictional landscape and its identity. This study deals with 89 fictional maps from recent children's and young adult literature. First we present a historical overview of these works and fictional maps, and then a cartographic analysis of fictional maps. We examined seventy-seven books with fictional maps and evaluated the maps according to five groups of standard cartographic elements: natural elements, built elements, toponyms, mathematical elements, and explanatory elements. We discuss the differences between cartographic representation of fictional maps and historic maps, and build a cartographic model based on the frequency of cartographic elements to put fictional maps into historic and geographical contexts.