A HAZY MIRROR? TESTING THE REFLECTION OF SOCIETY IN STATE TOPOGRAPHIC MAPS

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BACKGROUND AND OBJECTIVES

The view that maps are 'texts' gives rise to the presumption that topographic maps provide a rich and detailed reflection of society which offers interpretation on many levels. This paper describes an investigation to explore whether national conditions are intrinsically expressed in official 1:50 000 topographic map symbology. A series of tests of association are conducted between the symbologies of 20 European state topographic maps and a variety of national statistics. Together, they explore the extent to which the classification and representation of the national landscape – as demonstrated in official 1:50 000 topographical mapping – reflect national characteristics at a detailed level.

APPROACH AND METHOD

The data used in this investigation are provided by Kent and Vujakovic (2009), whose typology derives from a tiered classification of 20 European state 1:50 000 topographic map symbologies. Apart from Greece and Luxembourg, all EU 15 countries are represented in the sample, along with new EU accession countries and those outside the EU (Table 1). The sample therefore exhibits considerable variation in population size, land area, climate, economic and industrial development, political heritage, and culture.

Country	1:50 000 Topographic Map Sheet
Austria	Sheet 202: Klagenfurt (Edition: 1998) *Bundesamt für Eich- und Vermessungswesen*
Belgium	Sheet 13: Brugge (Edition: 2, 2002) *Institut Géographique National*
Czech Republic	Sheet 13-11: Benátky nad Jizerou (Edition: 2003) *Český úrad zememericky a katastrálni*
Denmark	Sheet 1214-I: Silkeborg (Edition: 4-KMS-DA, 2003) *Kort- og Matrikelstyrelsen*
Finland	Sheet 2724: Palojoensuu (Edition: 2001) *Maanmittauslaitos*
France	Sheet 1422: Chalonnes-sur-Loire (Edition: 2, 1982) *Institut Géographique National*
Germany	Sheet L4512: Unna (Edition: 11-DGID, 2004) *Landesvermessungsamt Nordrhein-Westfalen*
Great Britain	Sheet 189: Ashford and New Romney (Edition: D1, 2004) *Ordnance Survey*
Iceland	Sheet 1916-I: Þorvaldsdalur (Edition: 1 DMA, n.d.) *Landmælingar Íslands*
Ireland	Sheet 48: Offaly, Westmeath (Edition: 2, 2003) *Suibhéireacht Ordanáis*
Italy	Sheet 083: Monte Grappa (Edition: 1, 1972) *Istituto Geografico Militare*
Latvia	Sheet 4323: Sigulda (Edition: 2006) *Latvijas Ģeotelpiskās Informācijas Aģentūra*
The Netherlands	Sheet 33-O: Oost Apeldoorn (Edition: 1999) *Topografische Dienst*
Norway	Sheet 1623 III: Roan (Edition: 4-NOR, 1997) *Statens Kartwerk*
Poland	Sheet N-34-124-D: Słubice (Edition: 1995) *Główny Urzad Geodezji i Kartografii*
Portugal	Sheet 27-C: Torres Novas (Edition: 3 IGP, 2004) *Instituto Geográfico Português*
Slovenia	Sheet 12: Jesenice (Edition: 2003) *Geodetska Uprava Republike Slovenije*
Spain	Sheet 963: Lora del Río (Edition: 1st Digital, 2003) *Instituto Geográfico Nacional*
Sweden	Sheet 13-H-SV: Gävle (Edition: 5, 2001) *Lantmäteriet*
Switzerland	Sheet 217: Arbon (Edition: 1999) *Bundesamt für Landestopographie*

Table 1 Topographic maps analysed

The method involves using the bivariate correlation coefficient tests of Pearson's product moment and Spearman's rank to investigate associations between topographic map data (i.e. count of symbols per class, percentage of class symbols per symbology, legend language) and a range of development statistics (e.g. socio-economic, cultural and demographic factors). This allows a meaningful investigation into the possible correlation of nationally specific conditions with the symbology of official state topographic maps.

RESULTS

On the broadest level, countries exhibit a core-periphery pattern in relation to their national symbologies, where those with a lower symbol count tend to be located on the geographical periphery of Europe. More specifically, tests incorporating population and population density yielded highly significant results, where both correlated positively with the proportion of symbols devoted to *Human/Artificial* features (more populous countries therefore tend to use fewer symbols when representing nature). There were also significant positive correlations between population density and *Accessibility and Transport* features (particularly *Road* and *Canals*).

Significant correlations were also found between Human Development Indicator (HDI) ranking and value and two classes: *Water Management, and Utilization* and *Vegetation*, where the better the HDI ranking and value, the smaller the proportion of symbols devoted to these feature types. Highly significant positive correlations were also found between the number of people employed in the manufacturing and construction sectors and the proportion of symbols allocated to the *Human/Artificial* features class.

All national mapping organizations (NMOs) acknowledge at least one mother-tongue language within a country by its inclusion in the legend. They seem to include a foreign language which the greatest number of potential map users are likely to understand (as is evident in the maps of Norway and Poland), rather than selecting the language of a neighbouring country, a principal trading partner, or the country responsible for the highest number of tourist arrivals.

CONCLUSION AND FUTURE PLANS

The results reveal a number of significant correlations between national conditions and elements of the symbology of European state 1:50 000 topographic maps. However, on the whole they indicate more general associations rather than explicit links. While reasons for this are unclear, it is likely that the outcome mainly reflects the influence of specifically national circumstances, which ultimately have a decisive impact on map design.

The findings perhaps also suggest that as 'mirrors of society', state topographic maps cannot be claimed to exhibit any more veracity than as 'mirrors of nature'. They are traditionally conservative in their cartographic design and NMOs tend to retain a choice of features which they consider to have the highest number of potential functions (or significance), to the greatest number of users over time. A comparison with another geographical region may confirm this, or may suggest how state topographic mapping falls short in meeting the needs of its users.

REFERENCE

Kent, A.J. and Vujakovic, P. (2009) "Stylistic Diversity in European State 1:50 000 Topographic Maps" *The Cartographic Journal* 46 (3) pp.179–213