THE LOCAL SYNTAX OF MAP SYMBOLISM

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The subject of this paper is the local syntax of map symbolism. Map symbolism (or map language) is the type of sign systems which underlie map making and map use. Syntax, understood in a wide sense, is a combinatorics of signs; it is the universe of rules and construction patterns according to which complex signs are built up of simpler ones. The local syntax of map symbolism encompasses the rules and patterns which govern how topemes are built up of more elementary signs. A topeme is the smallest complete entry in a map (examples: signs referring to a county, a lake, a city of three million inhabitants). It usually contains exactly one locator, *i.e.*, a visually unitary mark which indicates location. There is also a supralocal syntax of map symbolism, which concerns the combination of topemes. By definition, the latter kind of combinatorics is not under discussion.

There are several different phenomena of combination within topemes. These are distinguished at the outset.

In analyzing the local syntax, one determines (1) how the contents (meanings) of elementary signs within a topeme are combined, (2) how the corresponding expressions (the visible items) are combined, and (3) how the combinational structure of the contents influences the combinational order of the expressions.

A formalism (or "grammar") is proposed and exemplified which permits to address points (1) and (2). Like a sentence in language, a topeme is built according to a construction plan. This plan involves, firstly, slots (positions) of several kinds and relations which link the slots. The slots, secondly, are occupied by fillers, which, in turn, may also be linked by relations (within slots or between slots).

Point (3) is relevant to practical map design. The map author is relatively free in assembling and arranging expression units. Still, there are some restrictions of this freedom; they give rise to descriptive design rules which are more or less stringent. These rules are listed and briefly discussed. The way of combining expression units depends not only on the underlying content structure, but also, and sometimes in the first place, on visual requirements and on characteristics of the graphic expression material.