

## CARTOGRAPHIC EVALUATION OF TOWN PLANS

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### ABSTRACT

Maps are the easiest way how to orient in an unknown environment, especially in the foreign city. Tourist maps are supposed to help visitors to get along with the city. This article is focused on the touristic maps or plans of the cities. They are evaluated from the view of cartography. It means semantic, cartographic and graphic rules. For the purpose of this article, a great amount of various maps of the cities and towns all over the Europe, Asia and North America were collected. The maps were divided into groups based on the map type e.g. pseudo 3D maps, commercial maps, maps with pictorial cartographic signs, touristic maps produced by professional cartographic companies and ortophotomaps. The evaluation from the cartographic view of every group was done. After the cartographic evaluation, maps were evaluated by non-cartographic users. The outputs will help to cartographers to choose proper cartographic signs for touristic map of the city. The cartographic recommendations help future authors of plan improve their town plans.

**Keywords:** town map, town plan, semiology, cartography, map evaluation

### INTRODUCTION

Every bigger town on the world has its own tourist map or town plan. Some of them are produced by city governments and looks more like a travel brochure, some of them are produced by private companies and looks more like advertisement and some of them are produced by companies dealing with cartography. Our team have been collected various maps from different towns and countries.

Nowadays, the existence of tourist plans is an important part of information in tourist industry. Travel brochures with texts and photos are a base for information [10]. The brochures are supplemented by orientation plans. The role of geographers is non-replacing in the stage of collection of information [5].

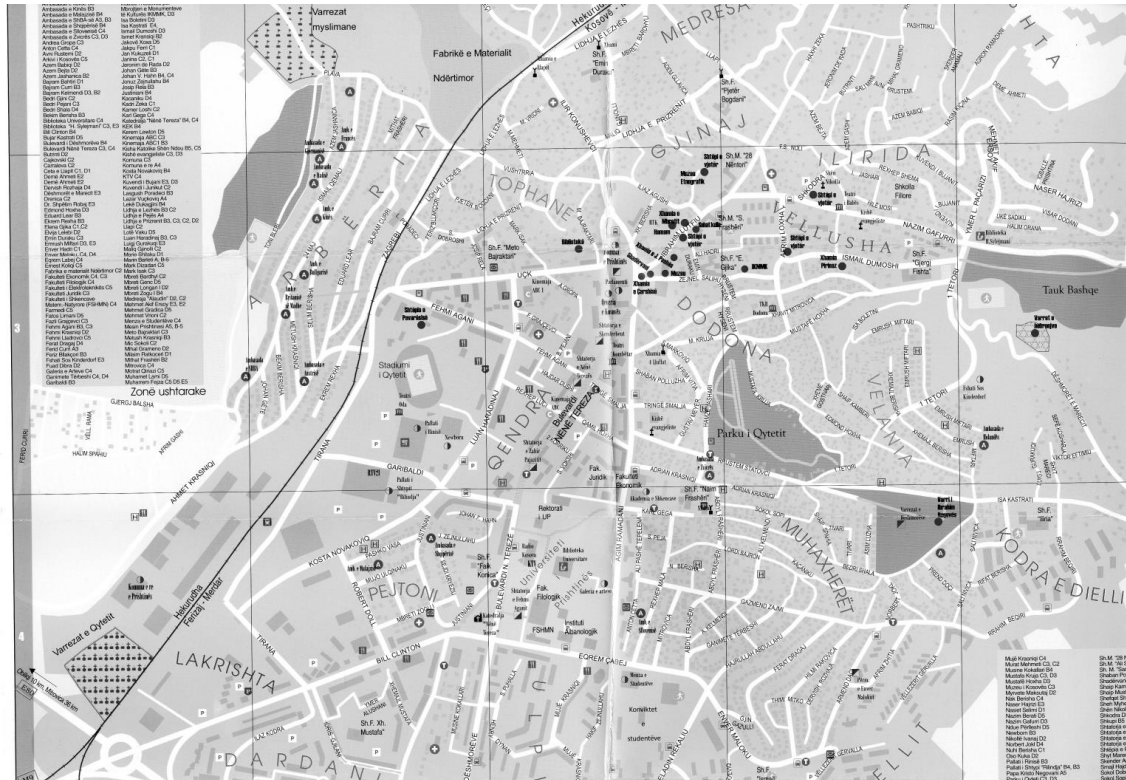
There are some differences between them, such as map composition, cartographic signs used for a different kind of maps or the goal of the map. Some cartographic elements and purpose of map determine separate them into groups.

Do all of the selected maps follow cartographic rules? If not, is it wrong or is the ability of map reading higher? Aim of this article is to evaluate chosen maps from the cartographic view and compare it with opinion of non-cartographic user.

## TOURIST MAPS AND TOWN PLANS EVALUATION

### Tourist Maps and Town Plans

Tourist maps are maps, which contains detailed topographical situation, hiking trails, sights, attractions (sports, natural, cultural, religious, ethnical and social) [14]. Town plans are maps, which contains positional location situation of the city, civic facilities, attractions and transportation network [14].

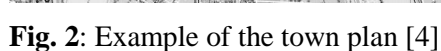


**Fig. 1:** Example of the tourist map [9]

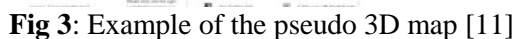
Tourist maps and town plans were chosen because of its focus. They are focused on a common user with no cartographic knowledge. Furthermore, nearly everyone came into contact with them.

The forms of tourist maps and town plans may be various. From huge maps of format A0 to little center of the town cut of format A4 were collected. The user has to decide which of these will be the best for him. The smaller cut with historical center will be more comfortable than whole town plan. Sometimes whole map is necessary for information about the transportation and driving directions. The best is a combination of both.

The quality of the map depends on the data precision. The map may be cartographically right, but if there are mistakes in location, the map loses its sense. The problem of the paper map is that it is getting older, and there is no possibility how to update it. So there will be an object which is not mapped. E.g. shops, pubs or bus stops, which is quickly changes.

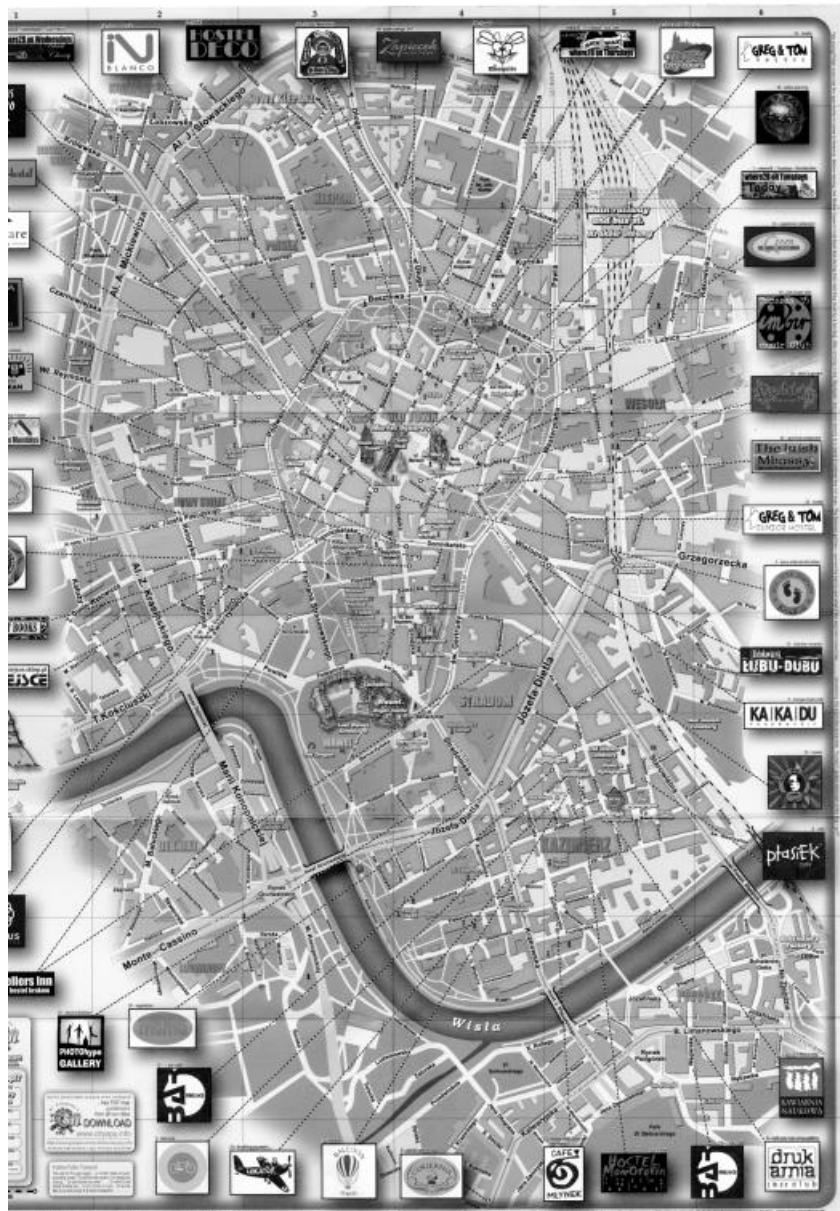


The tourist maps and town plans were divided into groups for aims of evaluation in the article. There were five groups. It was: pseudo 3D maps, commercial maps, maps with pictorial cartographic signs, touristic maps produced by professional cartographic companies and ortophotomaps. About 10 maps were chosen in each group.



Pseudo 3D maps are mostly maps of mountains. Winter maps show downhill courses, funiculars, stations and elevations of the mountains. Summer winter maps show touristic pathways, high observatory points. See fig. 3.

Commercial maps are produced by companies for advertise their goods. These maps are for free mostly. See fig. 4.



**Fig 4:** Example of the commercial map [8]

Maps with pictorial cartographic signs are maps of the city center with the sights mostly. See fig. 5.



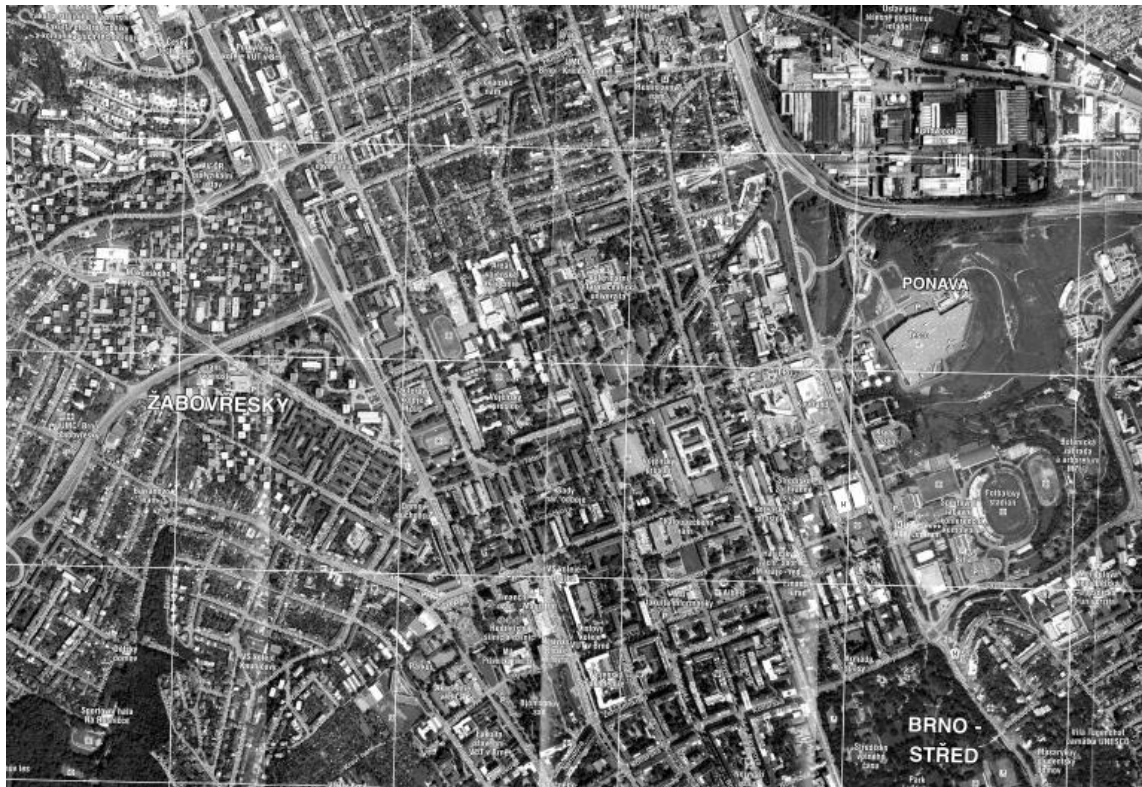
**Fig 5:** Example of the map with pictorial cartographic signs [13]

Touristic maps produced by professional cartographic companies are common maps, which can be bought on bookshops and newsagents. See fig. 6.



**Fig 6:** Example of the touristic map [7]

Ortophotomaps are maps on the base of the photograph acquired by planes. See fig. 7.



**Fig 7:** Example of the ortophotomap [1]

### **Tourist maps and town plans evaluation**

Tourist maps and map plans were evaluated by cartographers and then by common users. The result of evaluation for each of group follows.

Pseudo 3D maps were evaluated by non-cartographic users as very well-arranged. Users worked faster with pseudo 3D map than with 2D map of the mountains. They generally rated them as better than 2D maps. From the cartographer's point of view, this kind of maps are mostly simple with point and line cartographic signs in it. Pseudo 3D map creates good imagination about valleys, peaks and slopes. They are focused on easy orientation in terrain it means that these maps brings the feeling of elevation.

Commercial maps were evaluated by non-cartographic users as useful but confusing. Positive fact is that these maps are for free. From the cartographic point of view, it contains a great amount of advertisements and other advanced composite elements. There may be broken the rule which says the most significant element of the map is the most distinctive. The advanced composite elements may detract the main topic of the map.

Maps with pictorial cartographic signs were evaluated by non-cartographers as nice to look at them. The ability of orientation on this kind of maps increased in comparison with common town plans and commercial maps. From cartographic point of view, the special kind of point cartographic signs are used. The pictorial, silhouette and for unimportant elements the geometric point cartographic signs are used. Pictorial sign better describes the unique silhouette of sight for tourist that visited it for the first time.

E. Sternberg [12] mentioned the usefulness of pictorial signs in the tourist industry that replace the lack of foreign languages.

Touristic maps produced by professional cartographic companies were evaluated as regular maps, which are used commonly. From cartographic point of view, these maps are mostly the most correct of all collected types. They have balanced map composition. Cartographic signs are formed according to cartographic rules. Maps are very clear.

Ortophotomaps were evaluated as nice to look at them. Non-cartographic users were appreciated possibility to see destination in the way how really it looks like. From cartographic point of view, there were some maps which used improper cartographic signs on the ortophotograph. In some cases, the signs were featureless so they were hard to see, in the other hand there were some cases where the signs were too distinctive, so reader was not able to perceive anything else.

## **CONCLUSION**

Tourist maps and town plans of various cities were collected and divided into five groups e.g. pseudo 3D maps, commercial maps, maps with pictorial cartographic signs, touristic maps produced by professional cartographic companies and ortophotomaps. The groups were evaluated by cartographers and non-cartographic users. Results will lead to several cartographic rules for tourist maps and town plans forming.

## **FUTURE PLANS**

The evaluation of the tourist maps and town plans is the first step of the work. Next step will be to pick all of the collected information and specify some rules for tourist maps and town plans producing.

Cartographic rules are sometimes complicated. Town plans are sometimes created by graphic designers that are not familiar with basic cartographic rules. From that point, it is more and more important to transfer cartographical knowledge from cartographers to computers [6]. The knowledge can be organized as cartographical domain ontology. Knowledge can be collected and spread by specific information systems that are expert systems [2, 3].

The Eye-tracking system will be used to collect other input data for work in the future. Recording of eye pathway on scanned town plans could be discover new information about the usability of touristic maps. Eye-tracking system can also record the time spending on same parts of a map.

## **ACKNOWLEDGEMENT**

The research was supported by the project of the Czech Science Foundation No. 205/09/1159 „Intelligent system for interactive support of thematic map creation“.

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