

ON-DEMAND CARTOGRAPHY FOR TREKKERS

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On-demand map-making tools and data are increasingly available on the internet. Those resources meet the diversification of user needs but often produce poor quality maps. In this paper, we introduce a method for identifying the specific needs of a community from a user survey, and adapting maps accordingly. This method was applied to trekking maps.

Four different groups with specific activities took part in the users' survey; those activities were walking, road cycling, cross-country biking, and recreational trekking. Transcripts of the questions and their answers were studied with natural language processing and lexicometry methods and tools. Relevant objects and concepts for each group were identified comparing their responses; then the critiques and expectations of each group were detected using morpho-syntactic patterns.

This paper gives suggestions for adapting maps on the basis of user responses to the survey; the suggestions focus on data selection and graphic representation.

One of the major points of criticism from trekkers concerning the initial map was that it was too dense and complicated, but at the same time they pointed out some information that was missing. As a consequence, Lambert graticule and points of interest that do not concern trekking whatsoever (like riding centres, golf courses or tennis) were removed while bicycles paths were added for recreational trekkers, road cyclist and cross-country bikers.

At the same time, graphic solutions were introduced to improve data hierarchy visualization using [Bertin 67]'s theory about visual variables. That satisfies one of the users' wishes: the improvement of map readability and colour contrasts. On the one hand, road theme colour was homogenized and greyed because the administrative road classification was of no use trekkers and gave too much visual impact to information that was not useful. However, an indication of road size has been preserved and is indicated by their size. Also, some levels have been removed from the toponym hierarchy in order to make it easier to understand.

Specific suggestions have also been given depending on the different trekking activities. They concern both the facilities used by each group and elements for orientation.

The French, Belgian, Spanish and Dutch national trekking federations define the same kinds of trails and mark them in the field with the same conventional signs. Our graphic suggestion is to emphasize pedestrian trails; those same trail-marking signs were used as graphical symbols (Cf. figure 1a), b), and d)). For recreational trekkers, numbers have been added to pedestrian trails and they are visually associated with the corresponding trail by a shared colour (Cf. figure 1d)). Those numbers refer to additional information that is available next to the map.

Specific trails were added to the cross-country biking map (Cf. figure 1a)); the difficulty level indication is the same used for ski maps. Moreover, contour lines were highlighted for cross-country bikers to help them to understand relief and altitude gradient.

The road cyclist map was designed at a 1/50 000 scale with generalized data. Concerning altitude and relief, the relevant information for road cyclists is the slope. The slope of cycling paths was indicated by a diverging color scheme to convey the difficulty of different sections of road (Cf. figure 2).

In conclusion, this paper describes part of an on-demand process and illustrates it for a specific community, trekkers. It has been shown that it is possible to select data and define radical graphic choices as long as the community is targeted enough to have the same needs and wishes.

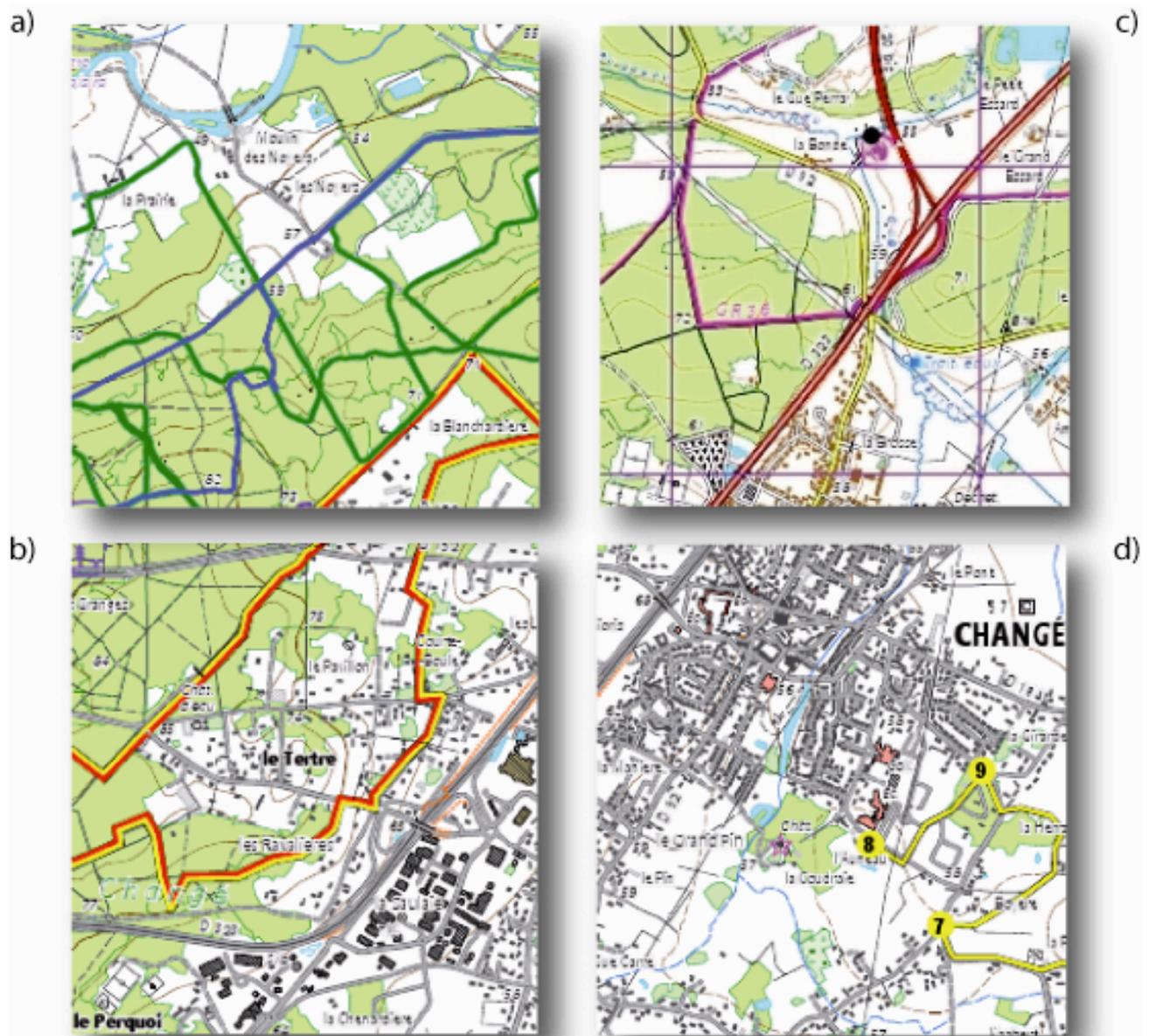


Figure 1. a) Cross-country biking map, b) Pedestrian map, c) Initial map, d) Recreational trekking map

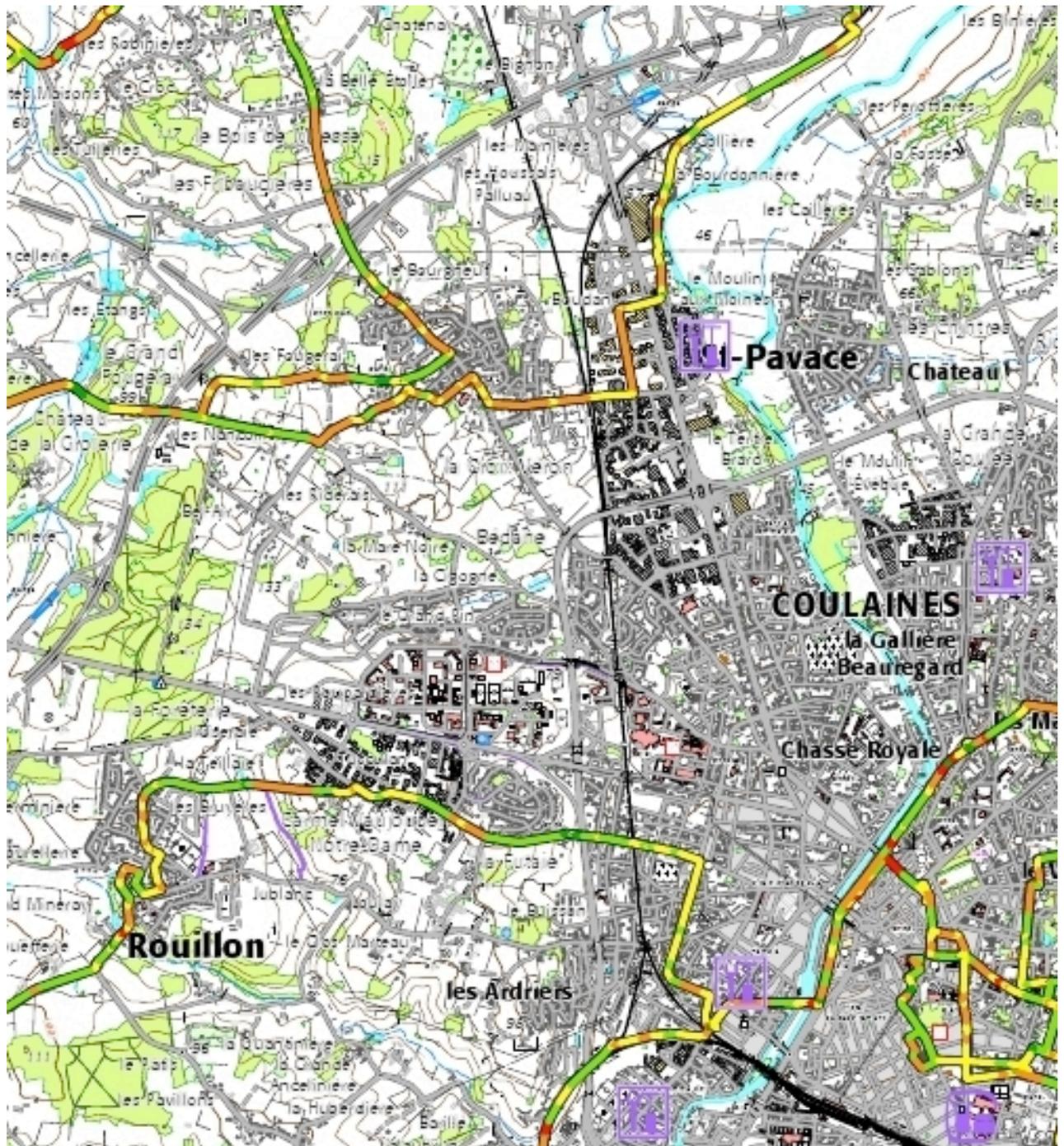


Figure 2. Road cycling map