

## Hidden Meaning of Cartographic Knowledge

Nonoko Tsukada

Tokyo Map Research Co., Ltd.

1-45-2 Yotsuya Fuchu-shi

Tokyo, 192 Japan

Few cartographers disagree with the statement that there is close relationship between map quality and generalization. The question is how to evaluate the quality of generalized map. One of the traditional expression of criteria of generalization process, "looks about right," may still be the key for evaluation of quality even in generalization guidelines in some national mapping agencies, but itself provides little insight. This reflects the complexity and subjectivity of cartographic generalization process, which have been executed by trained cartographers. Example of subjective generalization guideline is seen in such fashion, "simplify convoluted lines appropriately". Although generalization guidelines of topographic maps by national mapping agencies have been considered as rich source of knowledge in recent studies which try to formalize cartographic rules, these subjective criteria in guidelines are acknowledged as difficult to be formalized. What is the appropriate sinuosity of lines on a generalized map? Clearly, appropriate degree of simplification of lines depends on the objective of maps and characteristics of features. Considerable amount of research on simplification of linear features have been conducted, yet, little research has investigated "appropriate degree of simplification" of specific features in different countries. This study examines the appropriateness of degree of simplification of physical linear features, single-line rivers and contour-lines, on 1:50,000 topographic maps generalized from 1:24,000 or 1:25,000 topographic maps in Japan and the United States. The objective of this study is to elucidate the hidden meaning of "appropriateness" of degree of simplification of physical linear features in each country. Particularly, it is investigated to determine whether there are common appropriate degree of simplification of physical linear features in different countries if the objective, scale and data quality are comparable. The measurement of degree of simplification employed for this study are retained length and number of points of the selected features on sample maps from each country. The examination revealed different degree of simplification of lines in terms of feature (rivers and contour-lines) and country. It indicates the different meaning of "appropriateness" by cartographers in Japan and the United States.