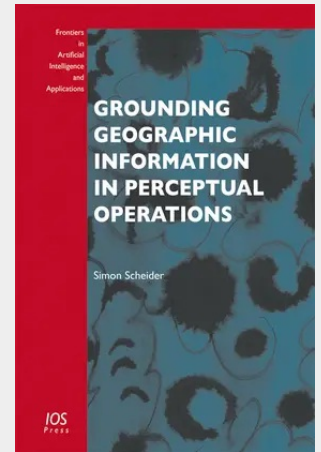


Grounding Geographic Information in Perceptual Operations

Geographic information reflects ontological world views, just like any linguistic utterance. However, in comparison with spoken language, all kinds of digital information is affected by the problem of reference to an even larger extent, because of the loss of the context of speech. How can the phenomena underlying digital information be referred to in an inter-subjective way? The problem is not that machines cannot communicate, but that humans frequently misunderstand each other when communicating via machines. This book puts forward a proposal about how semantic reference can be reproduced based on the operations necessary to generate a dataset. These include cognitive constructions as well as perceptual operations, i.e., operations of the human attentional apparatus. Perceptual operations allow one to share information by focusing human attention on 'Gestalts' in the perceived space around the body. Gestalt mechanisms allow observers to make predications, i.e., to relate foci of attention. The author proposes a kind of 'practical constructivism' guided by a formal language. The idea is to describe data 'bottom-up' in order to reconstruct the observation and abstraction process, instead of presuming abstract ontological concepts. This approach is demonstrated by reconstructing the concept of a road network, which underlies an important kind of geographic data.



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