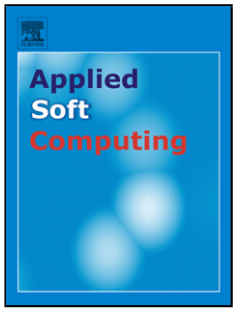

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Letter: The Concept of Stratification and Future Applications

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Highlights

- A recently proposed concept has been investigated
- Three extensions to the concept are proposed
- Future directions for this new concept have been suggested

Abstract:
The main purpose of this letter is to draw attention to a recent concept, namely Concept of Stratification (CST) developed by Zadeh [1]. CST describes a system that transitions through a number of states in order to arrive at a desired state. CST is a problem-solving approach, which is easy while effective. Therefore, CST seems very likely to emerge in coming years as a major interest area in areas such as soft computing, Artificial Intelligence (AI), robotics, Natural Language Processing (NLP), and big data. In this expository letter, the advantages and the main shortcoming of CST are reviewed. The concept is explained and areas that the concept is likely to be applied are discussed. Considering the generality of the original CST proposed by Zadeh, it is possible to consider different versions for CST to be applied in future studies. Hence, versions of CST including fuzzy CST, a 3DCST, and multiple systems and multiple CSTs are presented. This work is a first step in a vast range of applications of CST. Researchers, especially those applying soft computing tools such as fuzzy sets theory and granulation, are encouraged to examine the capability of CST in addressing significant real-world problems.

Keywords: Concept of Stratification (CST), Fuzzy logic, Granulation; Artificial Intelligence (AI)

1. Introduction

Recently, a version of stratification, namely Concept of Stratification (CST), was proposed by Zadeh [1]. CST describes a system that transitions through a number of states in order to arrive at a desired state, namely a target state. The states, which have associated inputs and outputs, are incrementally stratified based on their distance from the target set. In comparison with the previous versions and applications of stratification, such as stratified logic [2], approach [3], programming [4], analysis [5], and others [6, 7], this new version of stratification, can handle a variety of problems yet is relatively easy to apply. The concept can be applied in soft computing, Artificial