Theoretical Exploration for the Impact of Accounting for Special Methods in Connectivity-Based Cohesion Measurement

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Abstract : Class cohesion is a key object-oriented software quality attribute that is used to evaluate the degree of relatedness of class attributes and methods. Researchers have proposed several class cohesion measures. However, the effect of considering the special methods (i.e., constructors, destructors, and access and delegation methods) in cohesion calculation is not thoroughly theoretically studied for most of them. In this paper, we address this issue for three popular connectivity-based class cohesion measures. For each of the considered measures we theoretically study the impact of including or excluding special methods on the values that are obtained by applying the measure. This study is based on analyzing the definitions and formulas that are proposed for the measures. The results show that including/excluding special methods has a considerable effect on the obtained cohesion values and that this effect varies from one measure to another. For each of the three connectivity-based measures, the proposed theoretical study recommended excluding the special methods in cohesion measurement.