Strengthen and Support the Maintenance of Object-Oriented Software

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Abstract

Inheritance is one of the most common features of object oriented languages, and has been widely applied to develop large and complex software system. However, designing a suitable inheritance hierarchy, involving redundant inheritance, is a difficult task and easily suffers from name-confliction and repeated inheritance which are error-prone and difficult to test. In this paper, we explain how redundant inheritance makes object-oriented programs difficult to test and maintain, and we give a concrete example of the problems that arise. We show that the difficulty lies in the fact that we lack an effective detection tool suited for work with inheritance problems. Therefore, a formal checking mechanism is proposed to detect and resolve redundant inheritance. Furthermore, this checking mechanism can be easily incorporated with object-oriented CASE tool to enhance software quality.

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