Hoare, C. A. R.; He, Jifeng
A trace model for pointers and objects. (English) Zbl 0954.68045

The authors propose a generic mathematical model to help in formalization of assertions about pointer structures that have gained much importance in the field of programming, especially in object-oriented programming. The approach taken here is based on rooted edge-labeled graphs. A graph specifies the classes of objects that each variable and attribute is allowed to point to. This model makes it possible to adopt methods from automata theory: E.g., the problem of inaccessible objects can be treated by calculating the language of traces, and deterministic graphs permit automatic resolution of polymorphism. Overall, the paper presents an interesting idea, which is worth to be worked out in more detail.

For the entire collection see [Zbl 0919.00073].

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MSC:

68N19 Other programming paradigms (object-oriented, sequential, concurrent, automatic, etc.)
68P05 Data structures
68N15 Theory of programming languages

Keywords:
rooted edge-labeled graphs