**Type-safe covariant routine overriding for the general-purpose programming language**

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**Abstract**

The paper presents the problem with the covariant overriding of routine arguments and potential solution when the compiler can statically detect type-unsafe calls and provide clear diagnostics to software developers.

**Keywords**

Variance, covariant redefinition-overriding, class, type safety, conformance.

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# INTRODUCTION

Static typing is treated as the foundation for reliable software development which raises the productivity of the software developers and reduces the cost of the development. Such aspects as inheritance and polymorphism allow creating reusable and extensible software components. The ability to redefine or override (the latter term will be used in this article) inherited routines (procedures and functions) is another important aspect of efficient reuse. While we override the inherited routine we may keep its signature unchanged – that will be invariant overriding, or change it to the conformant signature – that will be covariant overriding or replace it with the signature to which the signature of the parent routine will conform to. The latter is known as contravariant overriding and latter leads to some isses.