

Ten Commandments Ten Years On: An Assessment of Formal Methods Usage

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Abstract. The application of formal methods has been slower than hoped by many in the formal methods community. Over the last decade, there have been some advances and important developments. Despite this, formal methods remain a specialist area, but have an increasingly important niche in the development of critical systems, especially where safety and security are involved. In this paper we examine the use of formal methods within the framework of ten “commandments” (rules for guidance) that were originally published in 1995. These remain remarkably relevant even ten years later, but this paper provides an update with the decade of experience that has been gained since then.

1 Background

*He proclaimed to you his covenant, which he commanded you to keep:
the Ten Commandments, which he wrote on two tablets of stone.*

— Deut.4:13, 10:4, Ex.34:28

Ten years ago, we were pleased to have our paper *Ten Commandments of Formal Methods* [1] promptly accepted for publication in *IEEE Computer*. Although written in a humorous style, it conveyed some serious practical guidelines to help ensure the success of a formal methods project. These guidelines were based, primarily, on our knowledge of several successful industrial projects, many of which were presented in [8] and [9].

