

Scope for the First Edition

Chapter 0 Introduction

varied large-scale software systems; personal preference matters have been neutralized to our best ability. We wrote down the distilled truth that remains, which should shape your understanding of what modern C++ has to offer without being skewed by our subjective opinions or domain-specific inclinations.

The final analysis and interpretation of what is appropriate for your context is left to you, the reader. This book is, by design, not a C++ style or coding-standards guide; it does, however, provide valuable input to any development organization seeking to author or enhance one.

Practicality is important to us in a real-world, economic sense. We examine modern C++ features through the lens of a large company developing and using software in a competitive environment. In addition to showing you how to best utilize a given C++ language feature in practice, our analysis takes into account the costs associated with routinely employing that feature in the ecosystem of a software development organization. Most texts omit the costs of using language features. In other words, we weigh the benefits of successfully using a feature against the hidden cost of its widespread ineffective use (or misuse) and/or the costs associated with training and code review required to reasonably ensure that such ill-conceived use does not occur. We are acutely aware that what applies to one person or a small crew of like-minded individuals is quite different from what works with a large, distributed team. The outcome of this analysis is our signature categorization of features based on how safe they are to adopt — namely, *safe*, *conditionally safe*, or *unsafe* features.

We are not aware of any similar text amid the rich offering of C++ textbooks; we wrote this book because we needed it.

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Given the vastness of C++’s already voluminous and rapidly growing standardized libraries, we have chosen to limit this book’s scope to just the language features themselves. A companion book, *Embracing Modern C++ Standard Libraries Safely*, is a separate project that we hope to tackle in the future. To be effective, this book, however, must remain focused on what expert C++ developers need to know well to be successful right now.

~~We chose to limit the scope of this first edition to only those features that have been included in the language standard since C++11 and widely available in practice for at least five years. This limited focus enables us to better evaluate the real-world impact of these features and to highlight any caveats that might not have been anticipated prior to standardization and sustained, active, and widespread use in industry.~~

We assume you are quite familiar with essentially all of the ~~basic and important special-purpose~~ features of ~~classic~~ C++98/03, so in this book we confine our attention to just the subset of C++ language features introduced in C++11 and C++14. This book is best for