Preface

> Suppose that you want to teach the 'cat' concept to a very young child. Do you explain that a cat is a relatively small, primarily carnivorous mammal with retractible claws, a distinctive sonic output, etc.? I'll bet not. You probably show the kid a lot of different cats, saying 'kitty' each time, until it gets the idea. To put it more generally, generalisations are best made by abstraction from experience.
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> R. P. Boas
> *Can we make mathematics intelligible?*, 1981

Why the title "*Learn R: As a Language*"? This book is based on exploration and practice that aims at teaching how to express various operations on data using the R language. It focuses on the language, rather than on specific types of data analysis, and exposes the reader to current usage and does not spare the quirks of the language. When we use our native language in everyday life, we do not think about grammar rules or sentence structure, except for the trickier or unfamiliar situations. My aim is for this book to help readers grow to use R in this same way, i.e., to become fluent in R. The book is structured around the elements of natural languages like English with chapter titles that highlight the parallels between them and the R language.

Learn R: As a Language is different to other books about R in that it emphasises learning of the language itself, rather than how to use it to address specific data analysis tasks. My aim has been to enable readers to use R to implement original solutions to the data analysis and data visualisation tasks they encounter. Use of quantitative methods and data analysis has become more frequent in fields with limited long-term tradition in their use, like humanities, or, the complexity of the methods used has dramatically increased, like in Biology. Such trends can be expected to continue in the future.

Currently, many students of biological and environmental sciences learn to use R in courses about statistics or data analysis. However, ~~frequently~~ not in enough depth to effectively use ~~it~~ in scripts for automating data analyses or to ensure their reproducibility. There are also many researchers in various fields who are already familiar with statistical principles and wiling to switch from other software to R. *Learn R: As a Language* is written with these readers in mind to serve both as a text book and as a reference.