Preface

We are happy to present our new book to the community. Although this is a book on revision theory, it uses general methodologies which are applied in other areas of logic. We would like to highlight these methodologies in this preface.

1. the idea of logic by translation

Given a new logical system $L$, whose properties we want to investigate, we translate $L$ into a well-known logic, usually classical logic $C$, modal logic or intuitionistic logic. We study the properties we want in the target logic and then translate back into $L$. Our approach of revision by translation (see Chapter 7) is an instance of that methodology. We can also do interpolation by translation. What is most well known in the community is semantics by translation and decidability and undecidability by translation. This is a common way of obtaining semantics or decidability results for logical systems.

2. meta-level/object-level movement

Given a logic $L$, there may be some manipulations of $L$ done in the meta-level. Such notions can be provability or consequence, e.g., $A \vdash B$ or deletion from a database. We may wish to bring these notions to the object level. This can be a complicated task. We all know about the problem of bringing the proof predicate into the object level. In this book we bring in the operation of deletion. Another lesser known result is the bringing in to the object level of a non-monotonic consequence relation $\sim$, and what we get when we do it correctly is a conditional in the object language.

3. context

The use of context can determine how we use our logic. The context is a label in Labelled Deductive Systems and it is a very rich label in situation semantics. In revision theory, it affects the algorithms we use to revise, and in many cases it might tell us not to revise at all and instead to try to obtain more data or simply live with the inconsistency in a careful way.
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