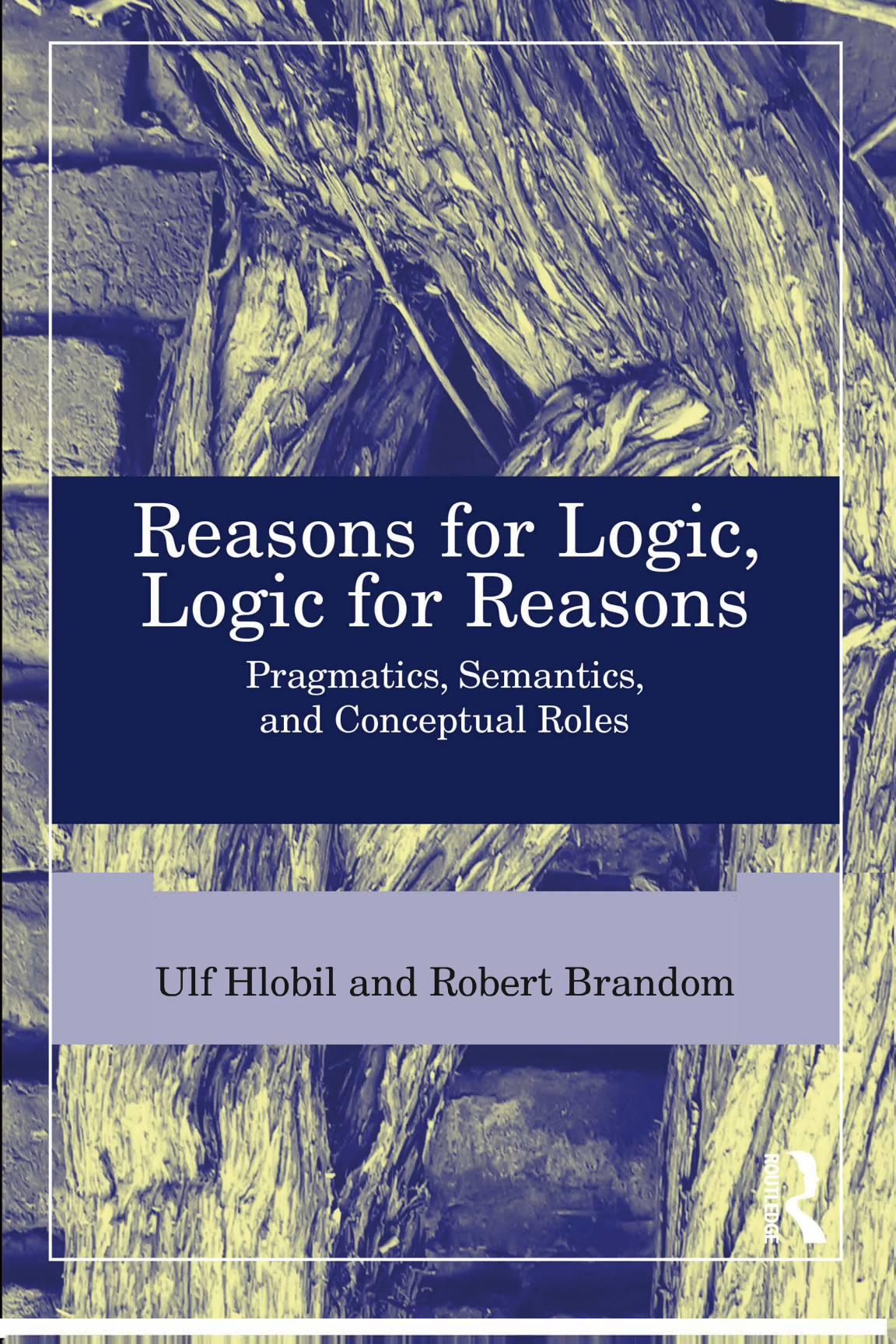

Reasons for Logic, Logic for Reasons

Pragmatics, Semantics, and Conceptual Roles

Ulf Hlobil and Robert Brandom

ROUTLEDGE

Reasons for Logic, Logic for Reasons

Reasons for Logic, Logic for Reasons presents a philosophical conception of logic—"logical expressivism"—according to which the role of logic is to make explicit reason relations, which are often neither monotonic nor transitive. This conception of logic reveals new and enlightening perspectives on inferential roles, sequent calculi, representation, truthmakers, and many extant logical theories.

The book shows how we can understand different metavocabularies as making explicit the same reason relations, namely normative-pragmatic, alethic-representational, logical, and "implication-space" metavocabularies. This includes a philosophical account of the pragmatic role of reason relations, treatments of nonmonotonic and nontransitive consequence relations in sequent calculi, a correspondence between these sequent calculi and variants of truthmaker theory, and the introduction of a novel kind of formal semantics that interprets sentences by assigning inferential roles to them. The book thus offers logical expressivists and semantic inferentialists new ways to understand logic, content, inferential roles, representation, and reason relations.

This book will appeal to researchers and graduate students who are interested in the philosophy of logic, in reasons and reasoning, in theories of meaning and content, or in nonmonotonic and nontransitive logics.

Ulf Hlobil is Associate Professor of Philosophy at Concordia University. His publications include "Limits of Abductivism About Logic" (2020) and *G.E.M. Anscombe: Aufsätze* (2014, with Katharina Nieswandt).

Robert B. Brandom is Distinguished Professor of Philosophy at the University of Pittsburgh. His books include *Making It Explicit* (1994), *Between Saying and Doing* (2008), and *A Spirit of Trust* (2019). He is a Fellow of the American Academy of Arts and Sciences and of the British Academy.

"Hlobil and Brandom join forces in this remarkable work of philosophy and logic, uncompromising in depth and in breadth. Their discursive rationalism provides the much-needed perspective of reasoners as they are engaged in critical reflection on their reasoning practices. We are invited to a bird's eye view of a rich network of logics that accounts for a variety of discursive practices and their relation to the world—and the sights are wonderful. *Reasons for Logic, Logic for Reasons* is a true masterpiece."

Gil Sagi, *University of Haifa, Israel*

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Ulf Hlobil and Robert B. Brandom

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This work is dedicated to all the people who have thought so hard with us about these and related ideas over the years in the Research Group on Logical Expressivism (ROLE), especially Daniel S. Kaplan, Shuhei Shimamura, Ryan Simonelli, and Rea Golan—and to sets of pairs, structured by commutative monoids and a partition.

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Preface

This book is the fruit of many years of collaboration, not merely between the two of us but rather a broader collaboration that included many colleagues, friends, and students. The Research Group on Logical Expressivism (ROLE) has met weekly for more than a decade, and many people have been members of the group during different time periods. The one whose contribution we most want to highlight and acknowledge specially in this preface is Daniel Kaplan, whose 2021 University of Pittsburgh Philosophy Ph.D. dissertation contains invaluable work and crucial results on the multiple conclusion sequent calculus and the implication-space semantics that we are presenting here.

Kaplan was the first in our group to realize how much things can be simplified and streamlined by moving from a single conclusion supra-intuitionistic sequent calculus to a multiple conclusion supra-classical sequent calculus. He realized that Ketonen's invertible connective definitions would make possible the kind of explicitation of a logic that in Chapter Three we call "explicitation by sequents" obeying "reflection," and the relations between the converse of this condition (which we call "representation" in Chapter Three) and the structural rule of Contraction. Perhaps Kaplan's most important contribution was the discovery of how Girard's phase-space semantics for linear logic can be adapted to our needs. Our version of the implication-space semantics that builds on this idea is presented in Chapter Five. Further, the notion of "implicational role inclusions" and its relations to strong Kleene, three-valued logics such as LP and K3 that are explored there is a development and integration into implication-space semantics of a formal apparatus he developed in our ROLE group for studying the relationships between the roles sentences have in consequence relations (known to us as his "right-arrow" machinery).

Our indebtedness to and reliance on Dan's earlier work on all these fronts is sufficiently substantial that our original plan was for him to serve as the principal author of the two chapters that build on constructions he

reports in his dissertation and in unpublished material circulated in the ROLE group. In the event, he realized that the press of difficult personal circumstances would make it impossible for him to do so to his standards and on a realistic time line, and gracefully withdrew from the project. As a result, though none of the particular sentences of the text presented in this work are specifically his, Dan's ideas are a pervasive influence on the reason relations that articulate the conceptual contents expressed by that vocabulary.

Other members of the ROLE group have also been important for the developments of the ideas that we are presenting here. Ryan Simonelli has done important work on how to think philosophically about the relation between logic and pragmatics, and he first saw some crucial connections between the ideas that we pursue in the ROLE group and certain issues regarding natural language conditionals, including connections between failures of monotonicity (MO) and failures of transitivity (Cut). Shuhei Shimamura has shown how quantifiers can be added to the logical systems that we present here, and he has done important work on invalidities and anti-sequents, as well as on various connections between our ideas and relevance logic and connexive logics. Rea Golan has also been instrumental in connecting the ideas that we pursued together with relevance logic, intuitionistic logic and other non-classical logics, as well as issues regarding meta-inferences.

In addition to the work by ROLE members and the weekly group discussions with them, we have been influenced by many friends and colleagues, including Jarsolav Peregrin, David Ripley, Viviane Fairbank, Lucas Rosenblatt, Katharina Nieswandt, Nabeel Hamid, Eduardo Barrio, Shawn Standefer, Federico Pailos, and Ladislav Koreň.

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Not only is this book deeply influenced and shaped by ideas of, and conversations with, colleagues and friends, but it is also a result of a collaboration between the two of us that started more than ten years ago. Nevertheless, we have decided to be explicit about who is the author of each chapter of this book, in the sense of having written the text of the chapters, although often on the basis of ideas that arose out of conversations and thinking about the issues together. Brandom is the chief author of the Introduction and Chapters One and Two. Chapters Three to Five as well as the Epilogue were written chiefly by Hlobil. We wrote Chapter Six together. Hence, we are chiefly responsible respectively for these parts of the text and any errors or otherwise problematic features that they might contain.