

Cambridge University Press
978-0-521-79644-6 - A Thematic Guide to Optimality Theory
John J. McCarthy
Frontmatter
[More information](#)

A Thematic Guide to Optimality Theory

This book describes Optimality Theory from the top down, explaining and exploring the central premises of OT and the results that follow from them. Examples are drawn from phonology, morphology, and syntax, but the emphasis throughout is on the theory rather than the examples, on understanding what is special about OT and on equipping readers to apply it, extend it, and critique it in their own areas of interest. To enhance the book's usefulness for researchers in allied disciplines, the top-down view of OT extends to work on first- and second-language acquisition, phonetics and functional phonology, computational linguistics, historical linguistics, and sociolinguistics. Furthermore, to situate OT for those coming from other traditions, this book also contains much discussion of OT's intellectual origins, its predecessors, and its contemporary competitors.

Each chapter concludes with extensive suggestions for further reading, classified by topics and supplemented by a massive bibliography (more than 800 items). The book ends with a list of frequently asked questions about Optimality Theory, with brief answers and pointers to a fuller treatment in the text.

John J. McCarthy began his work on Optimality Theory in 1992, when he received a Guggenheim Fellowship to support his research on prosodic morphology. He is the author of *Formal Problems in Semitic Phonology and Morphology* (1985) and has coedited three books, including *The Logical Problem of Language Acquisition* (1981). Dr. McCarthy has served on the editorial boards of *Language*, *Linguistic Inquiry*, *Natural Language and Linguistic Theory*, and *Phonology*.

Research Surveys in Linguistics

In large domains of theoretical and empirical linguistics, scholarly communication needs are directly comparable to those in analytical and natural sciences. Conspicuously lacking in the inventory of publications for linguists, compared to those in the sciences, are concise, single-authored, non-textbook reviews of rapidly evolving areas of inquiry. *Research Surveys in Linguistics* is intended to fill this gap. It consists of well-indexed volumes that survey topics of significant theoretical interest on which there has been a proliferation of research in the last two decades. The goal is to provide an efficient overview and entry into the primary literature for linguists – both advanced students and researchers – who wish to move into, or stay literate in, the areas covered. Series authors are recognized authorities on the subject matter as well as clear, highly organized writers. Each book offers the reader relatively tight structuring in sections and subsections and a detailed index for ease of orientation.

Cambridge University Press

978-0-521-79644-6 - A Thematic Guide to Optimality Theory

John J. McCarthy

Frontmatter

[More information](#)

A Thematic Guide to Optimality Theory

JOHN J. McCARTHY

University of Massachusetts, Amherst



CAMBRIDGE
UNIVERSITY PRESS

Cambridge University Press
 978-0-521-79644-6 - A Thematic Guide to Optimality Theory
 John J. McCarthy
 Frontmatter
[More information](#)

PUBLISHED BY THE PRESS SYNDICATE OF THE UNIVERSITY OF CAMBRIDGE
 The Pitt Building, Trumpington Street, Cambridge, United Kingdom

CAMBRIDGE UNIVERSITY PRESS
 The Edinburgh Building, Cambridge CB2 2RU, UK
 40 West 20th Street, New York, NY 10011-4211, USA
 10 Stamford Road, Oakleigh, VIC 3166, Australia
 Ruiz de Alarcón 13, 28014 Madrid, Spain
 Dock House, The Waterfront, Cape Town 8001, South Africa
<http://www.cambridge.org>

© John J. McCarthy 2002

This book is in copyright. Subject to statutory exception
 and to the provisions of relevant collective licensing agreements,
 no reproduction of any part may take place without
 the written permission of Cambridge University Press.

First published 2002

Printed in the United Kingdom at the University Press, Cambridge

Typefaces Times Roman 10/12 pt. and Franklin Gothic *System* QuarkXPress [BTS]

A catalog record for this book is available from the British Library.

Library of Congress Cataloging in Publication Data

McCarthy, John J., 1953–

A thematic guide to optimality theory / John J. McCarthy.

p. cm. – (Research surveys in linguistics)

Includes bibliographical references and index.

ISBN 0-521-79194-4 (hb) – ISBN 0-521-79644-X (pb)

I. Optimality theory (Linguistics) I. Title. II. Series.

P158.42 .M43 2001

410'.1–dc21

00–069655

ISBN 0 521 79194 4 hardback
 ISBN 0 521 79644 X paperback

Contents

<i>How to Use This Book</i>	page xi
<i>Acknowledgments</i>	xiii
Prologue	1
1 The Core of Optimality Theory	3
1.1 Basic Architecture	3
1.1.1 Candidate Comparison	3
1.1.2 Ranked Constraints and EVAL	6
1.1.3 GEN	8
1.1.4 Summary, with Possible Variations	10
1.2 The Theory of Constraints	11
1.2.1 The Universality of Constraints	11
1.2.2 Constraint Typology	13
1.2.3 Constraint Schemata and Fixed Hierarchies	17
1.3 Constraint Interaction	22
1.3.1 Faithful and Unfaithful Mappings	22
1.3.2 Homogeneity of Target/Heterogeneity of Process	25
1.3.3 Blocking Effects	26
1.3.4 Summary	29
1.4 How to Do OT	30
1.4.1 Ranking Known Constraints	30
1.4.2 Selecting Informative Candidates	34
1.4.3 Diagnosing Problems	36
1.4.4 Positing New Constraints	39
1.5 For Further Reading	42
Notes	44

viii	Contents	
2	The Context of Optimality Theory	48
2.1	Developments in Phonological Theory	48
2.2	Syntactic Theory Contrasted with Phonological Theory	55
2.3	Rules and Constraints in Phonology and Syntax	56
2.4	Harmony Theory	59
2.5	For Further Reading	61
	Notes	64
3	The Results of Optimality Theory	66
3.1	Consequences of Markedness/Faithfulness Interaction	66
3.1.1	The Basics: Ranking Prerequisites for an Unfaithful Mapping	67
3.1.2	Inventories and Richness of the Base	68
3.1.2.1	Basic Concepts	68
3.1.2.2	The Duplication Problem, with Examples	71
3.1.2.3	Absolute III-Formedness	76
3.1.2.4	The Lexicon and Richness of the Base	76
3.1.2.5	Syntactic Applications	81
3.1.2.6	Summary and Methodological Remark	82
3.1.3	Distributional Restrictions	82
3.1.3.1	Basic Notions	82
3.1.3.2	Factorial Typology	83
3.1.3.3	Identical Distribution	84
3.1.3.4	Complementary Distribution	84
3.1.3.5	Contextual Neutralization	87
3.1.3.6	A Syntactic Example: Only-When-Needed Behavior	89
3.1.3.7	Summary	91
3.1.4	Processes and Systems of Processes	91
3.1.4.1	Basic Notions	91
3.1.4.2	Homogeneity of Target/Heterogeneity of Process	93
3.1.4.3	Conspiracies	95
3.1.4.4	Interim Summary	101
3.1.4.5	Harmonic Ascent	101
3.1.4.6	Incomplete Process-Specificity of Blocking	103
3.1.4.7	No Constraint-Specificity of Repair	106
3.1.4.8	No Construction-Specificity of Interactions	107
3.1.4.9	Peroration	108
3.1.5	Typology and Universals	108
3.1.5.1	Overview	108
3.1.5.2	Architectural Imperatives	109
3.1.5.3	Universals from Factorial Typology	112
3.1.5.4	Universals from Fixed Hierarchies	117
3.1.5.5	Summary	119

Cambridge University Press

978-0-521-79644-6 - A Thematic Guide to Optimality Theory

John J. McCarthy

Frontmatter

[More information](#)

Contents	ix
3.2 Consequences of Constraint Violability	120
3.2.1 Nonuniformity of Structure	121
3.2.1.1 The Basics	121
3.2.1.2 Exemplification	121
3.2.1.3 Opposite Constraints	125
3.2.1.4 Summary and Comparative Remarks	128
3.2.2 Emergence of the Unmarked	129
3.2.2.1 The Basics	129
3.2.2.2 Comparison with Parameters	131
3.2.2.3 Comparison with Default Rules	132
3.2.2.4 Summary	134
3.2.3 Extremism and Economy	134
3.3 Consequences of Globality and Parallelism	138
3.3.1 Globality and Parallelism Explained	138
3.3.2 Exemplification	142
3.3.2.1 Consequences of Globality	142
3.3.2.2 Consequences of Parallelism: Overview	142
3.3.2.3 Consequences of Parallelism I: Chicken-Egg Effects	144
3.3.2.4 Consequences of Parallelism II: Top-Down Effects	146
3.3.2.5 Consequences of Parallelism III: Structurally Remote Interaction	149
3.3.2.6 Consequences of Parallelism IV: Derivationally Remote Interaction	152
3.3.2.7 Some Challenges to Remote Interaction	156
3.3.2.8 Consequences of Parallelism V: Globality Effects	158
3.3.2.9 Summary	163
3.3.3 Other Architectures for OT	163
3.3.3.1 The Context and the Issues	163
3.3.3.2 Harmonic Serialism	166
3.3.3.3 Cyclic Evaluation	170
3.3.3.4 Modular Architectures	172
3.3.3.5 Other Approaches to Opacity in OT	174
3.3.3.6 Final Remarks	177
3.4 For Further Reading	178
Notes	185
4 The Connections of Optimality Theory	192
4.1 Further Issues in OT Syntax	193
4.1.1 Some Controversial Questions	193
4.1.2 Absolute Ill-Formedness	195
4.1.3 Syntactic Optionality	200

4.2	Learnability and Acquisition	202
4.2.1	Language Learnability	202
4.2.2	Language Acquisition	207
4.3	Formal and Computational Analysis	216
4.4	Functionalism	220
4.4.1	Introduction	220
4.4.2	Formal Constraints and Physical Events	222
4.4.3	Evaluating Phonological Systems	225
4.5	Variation and Change	227
4.6	For Further Reading	230
	Notes	234
	Epilogue	237
	<i>Appendix A: Frequently Asked Questions</i>	239
	<i>Appendix B: Symbols and Abbreviations</i>	247
	<i>References</i>	251
	<i>Index of Names</i>	299
	<i>Index of Constraints</i>	305
	<i>Index of Languages</i>	307
	<i>Index of Topics</i>	309

Cambridge University Press

978-0-521-79644-6 - A Thematic Guide to Optimality Theory

John J. McCarthy


Frontmatter

[More information](#)

How to Use This Book

This book is one of a series called Research Surveys in Linguistics, the goal of which is to provide compact overviews of the background to and current state of the art in an area of linguistics. The series is addressed to graduate students and professionals in linguistics and allied fields.

In this book, I am trying to explain Optimality Theory in a way that is both accurate and accessible. I want to be faithful to the preciseness that is one of OT's attributes, but at the same time I want to avoid letting the details of particular analyses distract from the main message. And in keeping with the plan for the series Research Surveys, I also have to be concise. For these reasons, this book is organized thematically, focusing on concepts and general results rather than phenomena.

To make this book more useful, I have given it a lot of structure. Because some readers might want to use it as a reference or as an adjunct to a textbook, it is divided into relatively small sections. These can be read on their own because there are literally hundreds of cross-references of the form §x.y, where *x* is the chapter and *y* the section. To make room for ample bibliography without overburdening the text, I have kept in-text citations to a bare minimum. Instead, the text frequently contains the annotation  §x.y§n. This directs readers to paragraph *n* in section *y*, which is the last section of chapter *x*. There they will find extensive suggestions for further reading, organized by topic. And because these suggestions are useless unless the readings are readily available, they are limited to publications, technical reports and working papers, doctoral dissertations, and materials downloadable from the Rutgers Optimality Archive or other Internet sites. (There are a few exceptions, when there is no other way to acknowledge a seminal contribution.)

Readers who are interested in a specific topic can use the table of contents or the index to head straight for the relevant section and then work outward from there using the cross-references and the suggested readings. Readers who have been puzzled or put off by certain aspects of OT might want to start with

Cambridge University Press

978-0-521-79644-6 - A Thematic Guide to Optimality Theory

John J. McCarthy

Frontmatter

[More information](#)

xii

How to Use This Book

the list of frequently asked questions (the FAQs) at the back of the book. These questions were compiled from various sources over the years: my own doubts and misunderstandings from the 1991 course where I first encountered OT; University of Massachusetts students taking my courses since 1992; suggestions from colleagues and from the reviewers of my book proposal; audiences at lectures I've given; publications; and the Optimal List discussion forum (optimal@ucsd.edu). The FAQs give short answers to the questions and refer to more detailed discussion in the text.

Introductory graduate linguistics courses are organized around fields like phonology or syntax rather than theories like OT. For that reason, publishers provide textbooks focused on phonology or syntax. This book is different, which is why it would not be suitable as the sole textbook in one of those courses. But I hope this book would be helpful as an adjunct to the traditional textbook or as a supplement to materials prepared by the instructor. A particular reader I have kept in mind while writing is the graduate student who has finished a semester or two of coursework, has seen some applications of OT, and is looking for help in putting it all together.

Here is some advice about how to negotiate one's way through this book. Begin by reading §1.1 and §1.2 very lightly, getting the general idea but not sweating the details. (In fact, it is best to skip §1.2.3 entirely at this stage.) Then read §1.3 and §1.4 more attentively, trying to work through and understand the basic results and techniques. After that, it might help to reread §1.1 and §1.2, but more closely. (It is probably best to skip §1.2.3 once again.) After this introduction, readers are prepared to forage throughout the rest of the book. If the goal is an understanding in depth of OT, then §3 should get the most attention, since it presents and illustrates the broad consequences of the theory. (And §3.1.5.4 says when it's best to read §1.2.3!)

I have written this book for readers who understand the goals of linguistic theory and the nature of linguistic argumentation but are not necessarily specialized in a field like phonology or syntax. I have tried to get a balance of examples from phonology, morphology, and syntax. The examples are always there to illustrate some point about OT as a theory; they are never intended to show how to analyze some particular phenomenon and should not be read or used as such. The examples and the associated constraints are nearly always simplified, so readers interested in the phenomenon itself and the unexpurgated analysis need to consult the original source (always cited nearby) and the related readings at the end of the chapter.

Improvements and additions will be made available on the author's webpage, <http://www.umass.edu/linguist/faculty/mccarthy.html>. Comments and suggestions are welcome – e-mail me at jmccarthy@linguist.umass.edu.

Cambridge University Press

978-0-521-79644-6 - A Thematic Guide to Optimality Theory

John J. McCarthy

Frontmatter

[More information](#)

Acknowledgments

I have been fortunate to receive much help during the past year and a half. I owe a lot to Christine Bartels, formerly of Cambridge University Press, for first suggesting this project to me, for her guidance, and for supplying me with seven often wise and always helpful anonymous reviews. In addition, Jane Grimshaw, Alan Prince, Paul Smolensky, and Ellen Woolford gave valuable feedback about the original proposal. Later on, the following persons read portions of the manuscript and gave me extensive advice about how to improve it: John Alderete, Eric Bakovic, Jill Beckman, Andries Coetzee, Stuart Davis, Paul de Lacy, Jane Grimshaw, René Kager, Ed Keer, John Kingston, Linda Lombardi, Elliott Moreton, Scott Myers, Jaye Padgett, Steve Parker, Joe Pater, Alan Prince, Vieri Samek-Lodovici, Jen Smith, Shin-ichi Tanaka, Bruce Tesar, Suzanne Urbanczyk, and Ellen Woolford. Linda Lombardi and Jane Grimshaw deserve special mention; Linda read the manuscript twice, giving me extensive comments both times, and Jane generously shared many of her ideas. Della Chambliss, Paul de Lacy, Maria Gouskova, Ania Lubowicz, and Monica Sieh helped with the proofreading and indexing. Merely listing their names is an inadequate indication of my gratitude to all of these colleagues and students; it doesn't begin to do justice to the quantity and quality of the criticisms I received from them. Of course, I alone am responsible for everything here.

The initial planning of this book was done under a National Science Foundation grant (BNS-9420424) and the writing was made possible by a sabbatical from the University of Massachusetts, Amherst. I am in addition grateful to Dean Lee R. Edwards of the College of Humanities and Fine Arts for indispensable research support.

This book is dedicated to the memory of my father, John J. McCarthy (July 17, 1925–February 13, 1997). “They will rise up on wings like eagles; they will run and not grow weary; and they will walk and not be faint.”