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Sam Hellmuth

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course in cognitive linguistics. As a whole, the book will be an extremely valuable reference work for scholars in cognitive linguistics, and it will prove equally relevant for linguists of other persuasions who want to know more about Cognitive Grammar and cognitive linguistics in general. Langacker's solid scholarship and independent thinking about language and linguistics represent a thought-provoking alternative to current mainstream linguistic theory. The book under review is much more than a basic introduction. It is a 'must read' for anybody who wants to be up to date in Cognitive Grammar and cognitive linguistics.

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John J. McCarthy, *Doing Optimality Theory: Applying theory to data*. Oxford: Blackwell, 2008. Pp. xi + 310.

Reviewed by SAM HELLMUTH, University of York

Doing Optimality Theory is intended to equip student (and more advanced) practitioners with key tools and concepts needed to construct an analysis within Optimality Theory (OT). After a concise introduction, the structure of the book reflects its practical intent, with a full one-third of its 310 pages devoted to a step-by-step guide to formulation of an OT analysis, in chapter 2. This is immediately followed by a (rather personal) treatise on how to write up an analysis. Subsequent chapters then return to the theory itself. The basic strategy of each chapter is to provide a pithy review of relevant prior literature on the constraint or technique under discussion, mixed with practical advice, openly acknowledged to be the personal opinions of the author. In this review I give a brief overview of the content

of each chapter before assessing how well the book is likely to achieve its stated aim.

Chapter 1, 'An introduction to Optimality Theory', gives a general introduction to OT, outlining the context in which the theory was developed and the basic components of the theory: CON (a set of constraints), EVAL (an evaluation metric), GEN (resulting in a set of possible realisations of a linguistic expression) and the concept of minimal violation. It addresses some of the issues that newcomers to OT often find difficult to accept, including the notion that constraints can be violated (with brief comparison to an alternative approach using parameterised constraints). OT is built upon two fundamental hypotheses: that constraints are part of Universal Grammar (though not necessarily innate; this debate is reviewed in section 4.7) and that constraints are universal (all constraints operate in every language). According to McCarthy, OT is a formal system which provides tools for investigating the ranking of violable constraints, but has nothing to say about the nature of those constraints, nor the structural representations that they manipulate, beyond the fundamental premise that the constraints involved in the grammar are of two types only: markedness and faithfulness.

Chapter 2, 'How to construct an analysis', is the meat of the book. It opens in 2.1 with advice on how to identify suitable data for analysis and formulate a good descriptive generalisation of it, and in particular how to state that generalisation in a way that will lead to a workable analysis within OT. Section 2.2 sets out the tools of an OT analysis. Essential to the process is a ranking argument, necessarily comprising a conflict (a set of possible output realisations on which two or more constraints disagree), a winner (the actual realisation) and a lack of disjunction between winner-favouring constraints. McCarthy explains the formal notions of total and partial ordering of constraints, as well as (more practically) how to tell when the analysis is 'finished'. The chapter then explores different notational conventions that have been proposed for illustrating ranking arguments, that is, different types of tableaux, explaining the advantages and disadvantages of each. McCarthy proposes a hybrid type – the combination tableau – which combines the properties of a classic violation tableau (Prince & Smolensky 1993) with some of the presentational advantages of a comparative tableau (Prince 2002a). The key advantage of the combination tableau is that it readily reveals disjunction cases, which are easily overlooked in other formats, and the combination tableau format is used almost exclusively throughout the rest of the book.

In the spirit of the subtitle of the book (*Applying theory to data*), section 2.3 gives step-by-step instructions on how to apply the OT tools to a descriptive generalisation to produce an OT analysis, in the form of a worked-out example in phonology (vowel shortening and epenthesis in Yawelmani). Section 2.9 later repeats the process with a syntactic generalisation. The intervening sections of chapter 2 give practical advice on different aspects of

the OT analytic process, pointing out common pitfalls and how to avoid them: 2.4 explains when and why a pair of constraints may be unrankable, and how to tell whether additional data would ever allow you to rank them; 2.5 discusses the problem of deciding what candidates (winners and losers) to consider, at different stages of an analysis (candidates which allow you to establish rankings, followed by candidates which test the analysis); 2.6 explains the concept of harmonic bounding (which yields candidates that can never win under any ranking of the proposed constraint set); 2.7 discusses techniques for determining the potential effects of the addition of a new constraint to a constraint set; and 2.8 treats the question of which inputs to consider, with discussion of the concept of Richness of the Base. The final sections of chapter 2 (2.10–2.12) explain step-by-step how to test the 'finished' analysis for problems, with advice on how to address common problems that arise. Two (advanced) techniques for working on complex analyses involving a number of constraints are introduced: RCD (Recursive Constraint Demotion; Prince 2002a) and software implementations of it such as OTSoft (Hayes, Tesar & Zuraw 2003), and ERC (Elementary Ranking Condition) fusion (Prince 2002b).

After the marathon of chapter 2, chapter 3, 'How to write up an analysis', is an interesting, provocative aside. There is advice on how to structure a paper, how to give (and receive) criticism, how to avoid common pitfalls to clear writing and even on how to choose a good research topic. Some of the specific advice might serve better as a starting point for discussion with students about how to do things, rather than as a blueprint to follow to the letter, but it is clearly given in the former spirit. There is detailed guidance on how to present an OT analysis incrementally, which might, if widely adopted, have the benefit of rendering OT analyses much more comprehensible to non-OT-literate readers.

Chapters 4–7 treat issues that must be considered by those attempting an OT analysis. In chapter 4, 'Developing new constraints', McCarthy starts by explaining when a new constraint might be required (in the context of a ranking paradox) and advocates pursuit of alternative solutions in preference to the proposal of a new constraint, if possible. He gives a worked-out example of how to define the set of properties that a new constraint will need to have in order to solve the ranking paradox, and how to use this to define possible new constraints which might resolve the analysis (the decision as to which is the correct constraint requires factorial analysis, described in chapter 5). There is general advice on how to define constraints, with the strong recommendation that every constraint definition involve a statement of the following kind: '[a]ssign one violation mark for every …'. Sections 4.5 and 4.6 set out the defining properties of markedness and faithfulness constraints, respectively. These sections include a useful review of the literature on gradient evaluation and harmonic alignment (for markedness constraints), and on correspondence theory and feature-/position-specific faithfulness (for

faithfulness constraints). Section 4.7 sets out desiderata for how to justify new constraints on formal or functional grounds (justification on typological grounds is treated in chapter 5). The chapter closes in section 4.8 with an invaluable list of 'common phonological markedness constraints' (223). These serve as a model of good practice in the definition of constraints as well as a reference list of existing constraints already in use in the OT literature.

Chapter 5, 'Language typology and universals', explains how factorial typology can be used to determine the typological predictions of any proposed constraint set. If CON is universal, then addition of a new constraint to the constraint set potentially implies a proliferation of possible ranking orders (and thus predicted languages). McCarthy explains first how OT captures linguistic universals (where there is no typology) as well as the concept of harmonic improvement, an important prediction that arises from the formal mechanisms of OT, whereby an unfaithful candidate expression can only be optimal if it is less marked than some other candidate (this prediction is problematic, since it excludes the possibility of chain shifts). A factorial typology is the set of possible re-rankings of a constraint set, with respect to some set of input–output mappings. McCarthy points out that, unless you are working with four or fewer constraints, it is impracticable to calculate by hand all possible constraint permutations and which candidates emerge as optimal under different rankings. He suggests techniques which use RCD (in OTSoft) to determine which input–output mappings are optimal under different re-rankings of a constraint set, thus to identify which re-rankings result in distinct possible languages. There are also examples of how to test the effects of a new constraint on the predictions of an existing constraint set, and on how to determine what properties of a constraint would be fatal to an analysis (should such a constraint exist). There is advice on how to start from cross-linguistic data and identify the possible constraint set whose re-rankings might generate the observed typology.

Chapter 6, 'Current research questions', is a useful, though non-exhaustive, summary of current research in OT. McCarthy very briefly reviews two areas where OT has made 'important new contributions' (260): (i) analysis of variation using constraint re-rankings, and its relation to Stochastic OT, and (ii) analysis of (first-language) acquisition, based on the claim of an initial bias towards ranking of markedness constraints over faithfulness constraints. The rest of the chapter surveys three areas of analysis which test OT's capabilities to the limit and force modifications to the tenets of classic OT: (i) the problem of transderivational similarity and opacity (resulting in proposals such as Stratal OT and Output–Output Faithfulness), (ii) the problem of ungrammaticality (here resolved by appeal to the concept of a 'null output'), and (iii) the 'too many solutions problem'. In the last case, McCarthy suggests a solution in one instance (a refinement of the properties of faithfulness constraints), but closes the book by exhorting OT analysts (and would-be analysts) to seek solutions in factorial

typology: 'OT's inherently typological character is the reason why the problem was first discovered … it may also be the place where the solution is to be found' (277). The book closes with a very brief 'Afterword' summarising the aims and intended outcomes of the book.

One of McCarthy's stated aims is to recreate 'the informal give-and-take of a classroom' (279), and the book is certainly both readable and practical, and successfully conveys an infectious enthusiasm for the process of analysis. The book provides extensive follow-up tasks, with a useful distinction made between 'Exercises', which in most cases seem to have clear right/wrong answers, and 'Questions', which are intended to be the starting point for discussion. Some of the exercises, however, are open to more than one analysis, whilst in some cases the questions have only one possible answer (within OT logic); in particular, some of the conceptual issues raised in discussion questions in chapter 1 might have been more usefully explained in the text. The book is nonetheless well structured and provides (but does not overly rely on) ample cross-referencing. The book exemplifies OT analysis of phonological and syntactic data (with somewhat more phonology than syntax), though there is no discussion of OT semantics or pragmatics.

Doing Optimality Theory will be an invaluable handbook for anyone who wants to produce an internally coherent analysis within OT. Although there are recurring examples that run through the book (e.g. Yawelmani phonology) it could not serve as a stand-alone textbook for a course in phonological or syntactic theory, but it will be a useful text for training (advanced) students in how to carry out and/or critique an OT analysis. The genesis of OT is set out in relation to rule-based derivational theory, and although subsequent representational theory is touched on in passing, there is little discussion of the position of OT relative to non-derivational theories, which is a gap. Occasionally McCarthy assumes knowledge of functional logic that not all readers will have.

This book is not intended to be a defence of OT, indeed it firmly espouses a universalist typological approach as the way forward, contra criticisms of this approach in McMahon (2000). Nonetheless this book should be of interest to OT sceptics as a source of accurate information about what OT actually does and does not claim, with chapter 4 (on constraints) probably the most useful in this respect. The detailed argumentation in chapters 3–7 will however be difficult, if not impossible, to follow if the reader has not already read and understood the formalisms introduced in chapter 2, so dipping into later sections without engaging with the whole book may not be viable. The book also serves as a highly accessible, extensively referenced review of current literature in OT.

In sum, this is an intensely practical book, full of concrete problem-solving advice, which should be well-thumbed by those learning and working within OT; due to its thoroughness, it has the potential also to serve as a useful sourcebook for OT sceptics.

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Louise McNally & Christopher Kennedy (eds.), *Adjectives and adverbs:
Syntax, semantics, and discourse* (Oxford Studies in Theoretical Linguistics
19). Oxford: Oxford University Press, 2008. Pp. xv + 354.

Reviewed by ANIKO CSIRMAZ, University of Utah

This volume is a collection of papers that examine various aspects of ad-
jectives and adverbs, touching on a variety of syntactic and semantic issues.
Most of the papers approach this topic from a semantic point of view, such as
the contributions by Marcin Morzycki, Christopher Piñón, or Olivier Bonami
& Danièle Godard. These discussions vary widely, and address issues ranging
from the interaction of linear order and semantics of adjectival modification
to a discussion of lexical semantic and pragmatic properties of evaluative
adverbs. Other papers – the first four chapters – lean more towards syntax,
and discuss the distributional, ordering and other syntactic properties of
adjectives. In spite of this variation, which is also reflected in the summaries
that follow, some generalizations emerge from the papers. Concerning syn-
tax, the accounts argue for a 'free' structure, where adjectival distribution is
not explicitly and independently restricted, in contrast with a cartographic
approach. The semantic discussions – in addition to specifying the semantic
and pragmatic properties of various classes of modifiers – often revolve
around scalarity or the role of discourse properties. A brief summary of each
chapter is given below.

The first chapter, 'Introduction', by Louise McNally & Christopher
Kennedy, offers an overview of some recurring issues in the generative
treatment of adjective and adverbs, as well as a summary of the papers
contained in the book.