Introduction

Optimality Theory (OT) shifts the focus of linguistic discovery from rules and derivations to constraints and rankings. It is a theory that has been most widely accepted in the realm of phonology, but has implications for all areas of linguistics. There are many linguists who accept OT while there are others who doubt its efficacy, especially with regard to providing a substantive theory of grammar. The current work examines theoretical issues arising from linguistic inquiries aimed at determining the specific properties that an OT grammar should include.

The book includes sixteen autonomous chapters by different scholars which have been arranged into four sections; prosodic representation (chapters 1-4), segmental phonology (5-7), syntax (8-12) and language acquisition (13-16). While there is an introduction which includes a general overview of the theory, terminology and notations, the book is not designed for the novice interested in learning more about OT, but rather for the indoctrinated scholar interested in exploring the scope of OT and debating the realm within which it should be applied.

Chapter reviews

In chapter 1, “Cycles, non-derived-environment blocking, and correspondence,” Luigi Burzio argues that surface-to-surface comparisons can account for both cyclic effects and non-derived-environment blocking (NDEB). He advocates a version of OT consisting of three types of constraints; purely phonological constraints (PHON), Input-Output faithfulness constraints (IO-F), and Output-Output faithfulness constraints (OO-F), and claims that phonological irregularities previously attributed to cycles or NDEB can be explained as instances where PHON constraints hold an intermediate rank between OO-F and IO-F constraints. After exposing the empirical inadequacies of the cycle, he demonstrates first that an underlying representation (UR) is unnecessary and then the falsehood of viewing UR as a level of representation at all.

Bruce Hayes addresses “Gradient well-formedness in Optimality Theory” in chapter 2. He proposes that rather than constraints which are ranked like discrete points in a line, each
constraint represents a band. These bands are ranked relative to each other, but may overlap at the edge, or the fringe. Greater levels of attestation separate the bands, and most bands differentiate through time and exposure. In areas of more unusual utterances or in a less experienced language learner, the bands overlap to a greater degree. Marginal utterances occur through the confusion which results from this fringe territory. These slightly overlapping bands are considered to have a preferred but not obligatory ranking. He exemplifies his proposal through an inspection of the acceptability of dark and light variations of /l/ in English.

In chapter 3 we find, “Stem stress and peak correspondence in Dutch,” by René Kager who also argues in favor of a correspondence-based account instead of a derivational or cyclic theory. It is argued that Lexical Phonology cannot capture the stress-governed blocking effects in affixation, but they flow naturally from the interaction of phonological and morphological constraints. Again a parallel, output-to-output comparison is shown to be more satisfactory than a multi-level serial approach.

The final chapter of the first section of the book is, “Faithfulness and prosodic circumscription,” by John McCarthy in which he argues that faithfulness constraints can completely take the place of operational prosodic circumscription. He exemplifies his argument by showing that foot reduplication and circumscriptional template-mapping can be better analyzed through constraints which reference feet, syllables and moras and their edges or associations. Prosodic faithfulness is more general and therefore more attractive.

Haike Jacobs and Carlos Gussenhoven begin the second section (Segmental phonology) with a chapter entitled, “Loan phonology: perception, salience, the lexicon and OT.” They argue that a constraint-based analysis of phonology accounts for loanwords the same way it deals with any other input, and is therefore superior to derivational analyses which need special sub-sections of the grammar or, minimally, additional rules to deal with loanwords. Making use of a universal segment parser in UG to define and specify the phonological representation of loanwords rather than seeing them as unanalyzed acoustic patterns, the authors dispense with the notion of separate perceptual and operational levels. Finally, they demonstrate that loanword phonology can reveal crucial constraint rankings that are not immediately evident from native words.

Next, Darlene LaCharité and Carole Paradis explore “Derivational residue: hidden rules in Optimality Theory.” They contend that saying GEN is not a derivational component or that it does not involve rules per se is misleading if not outright incorrect. Using loanword adaptation they show that the significance of OT is not the lack of rules but the importance of constraints and the relationship between rules and constraints. Most notably, the rules are not seen as repair strategies in response to constraints; instead they are seen as a way to relate (transform) input to output via insertion and deletion of content or structure. They argue that GEN should receive greater attention and that a lack of rules should not be a criterion to distinguish OT from other theories or to assert its superiority.

Chapter 7, the final chapter on phonology is, “Dependency theory meets OT: a proposal for a new approach to segmental structure.” Norval Smith presents a brief survey of features in OT followed by an introduction to his version of dependency phonology (DP). He contends that
segmental structure should not be ignored in OT then argues DP’s suitability and superiority as a theory of segmental structure to be used within an OT framework.

Peter Ackema and Ad Neeleman begin the third part of the book (Syntax) with a look at “Absolute ungrammaticality.” They address the question of why some constructions have no realization at all in some languages. Since the object of OT is to pick the optimal grammatical output for a given input, should not every possible input have an output? They argue in favor of a null parse using multiple Wh-questions, various passive constructions, and superfluous auxiliaries as examples and show that partial underparsing is an unsatisfactory solution.

In “Towards an optimal account of second-position phenomena,” Stephen Anderson first demonstrates the inadequacy of traditional, syntactic approaches to explaining clitic placement. He gives evidence that second-position clitics do not occupy a single, consistent position in the hierarchical structure of clauses. He then provides an OT alternative which handles clitics within phrasal morphology. Finally, he addresses the verb-second phenomena and shows how the same constraints which result in clitic-second can explain verb-second, although the mechanism for the movement is different (affixation rules versus syntactic movement), the motivation is parallel.

Next, in chapter 10, Joan Bresnan posits her own “Optimal syntax” theory based on LFG (lexical functional grammar) while giving a systematic critique of Grimshaw (1997). She develops an imperfect correspondence approach to head movement, and incorporates a parallel correspondence theory of syntactic structures to show conceptual and empirical advantages to a non-derivational theory of GEN. Extended X-bar theory and correspondence can recast constraints that seem to presuppose a transformational syntax. Thus a non-transformational theory based on imperfect correspondence mapping emerges.

In contrast to the non-derivational approach proposed by Bresnan, Hans Broekhuis and Joost Dekkers bring “The Minimalist program and Optimality Theory: derivations and evaluations” in chapter 11. The authors propose a computational system for human language as outlined by Chomsky (1995) as a basis for GEN. They argue that Chomsky’s system by itself fails with regard to descriptive adequacy and that the addition of OT’s system of constraints to serve as filters satisfies this requirement. OT by itself lacks generative power. By using an investigation of finite relative clauses in English and Dutch they show that rather than being seen as alternative approaches, these two theories of grammar should be seen as complementary. They also investigate the division of labor between GEN and EVAL and argue for a semantic identity requirement on candidate sets.

Géraldine Legendre revisits clitics in chapter 12, “Morphological and prosodic alignment of Bulgarian clitics.” She strives to provide a unified account of Bulgarian clitics which display both marked and unmarked properties. For example, some Bulgarian clitics are phrase initial while most cluster in the second position, although there are further exceptions. Like Anderson, Legendre examines clitics in morphological terms, not syntactic. She argues that OT constraint ranking satisfactorily explains clitic placement and behavior. Further, she extends the possible restrictive domains of clitics to include the intonational phrase. Also, she proposes modular constraint ranking as a meta-constraint, namely, the Constraint Intermixing Ban.
The fourth and final section of the book (Acquisition) begins with chapter 13 by Paul Boersma entitled, “Learning a grammar in Functional Phonology.” It gives some basic background information which is helpful to someone unfamiliar with Functional Phonology (FP). After this introduction, Boersma exemplifies sibilant acquisition and tongue-root harmony in several language learning algorithms and concludes that the maximal gradual learning algorithm is the most realistic model of language learning. He also gives criterion for assessing the success of the acquisition process, and touches on the amount of data necessary to arrive at an adult grammar. Boersma claims that constraints are not innate. His learner begins with an empty grammar then organizes perceived phonological features, thus faithfulness constraints enter the grammar. Similarly, as the learner masters an articulatory gesture, it enters the grammar. In this way, constraints are formed from the given data and the learner’s interaction with it.

In chapter 14, “The universal constraint set: convention, not fact,” T. Mark Ellison examines logical arguments from empirical evidence, restrictiveness, simplicity, universal markedness, acquisition and learnability to argue against a set of universal constraints. These constraints are not inherent in every speaker of every language; instead they are a useful convention for linguists seeking language comparison. Similar to the IPA, a set of universal constraints would make the sharing of linguistic descriptions much more straightforward. He says, “(Universality) should be used rather than believed” (p. 525).

Douglas Pulleyblank and William Turkel explore genetic algorithms which incorporate OT constraints in chapter 15, “Learning phonology: genetic algorithms and Yoruba tongue-root harmony.” They use Yoruba tongue-root harmony which has a relative-alignment grammar and a hypothetical language with an absolute-alignment grammar to demonstrate the implementation of genetic algorithms. The authors suggest that the structure of OT is well suited to an acquisition model based on genetic algorithms and that these algorithms could be used to test various hypotheses because the acquisition of complex phonological patterns is rapid.

Finally, Bruce Tesar contributes chapter 16, “On the roles of optimality and strict domination in language learning.” First, he briefly summarizes several algorithms of learning theories used in earlier grammatical approaches such as Principles and Parameters, including the triggered learning algorithm, cue learning, the minimum description length method and the forward-backward algorithm (a type of expectation-maximization algorithm). Then he demonstrates how a linguistic theory such as OT which uses a constraint structure of strict domination permits efficient learning of the correct constraint ranking as opposed to systems which allow relative strengths of constraints to play a role. This strict domination allows the learner to move from grammatical hypotheses to grammatical overt forms. He also shows how error-driven constraint demotion helps the learner arrive at correct constraint ranking while optimality helps the learner arrive at correct structural descriptions.

**Concluding remarks**

The book offers a broad exposition on OT and in many ways is a defense of OT. It exemplifies how its constraints and rankings are a satisfying way of approaching phonology, syntax and language acquisition. The authors not only urge the reader to embrace OT, but to expand the
theory and seek ways in which OT could, or should be applied to grammars, thereby improving or advancing optimality as a theory.

Each chapter provides expansive bibliographical information, and as such is a nice resource. Because the book offers so many different views of OT and encourages divergent hypotheses, it may be an appropriate book for a semester-long course on OT. However, because of its theoretical and technical nature and the assumption of a very broad base in knowledge of different theories and (relatively) current literature, it may not be a helpful book to most field linguists.

In any book of 600+ pages there will be some typos. The various errors range in scope and severity. For instance, on page 26 of the introduction, /ete/ is used to exemplify the underlying form of a disharmonic paring in a tongue-root language (/ete/ or /ete/ would have been appropriate). There are several errors in diagrams of segmental structure, such as a sibilant which should be referred to as M’'[C]-M’'[V]-M[C] (as in example (26) (p. 251)) but is M’’[C]-M'[C]-M[C] in example (28) (p. 252) (this same diagram also has an error in the affricate it lists). A back reference to (ii) on page 352 should read (iii). As a final example, in tableau (2) on page 603 there is a missing asterisk which should appear under the column labeled ‘SUP’ in the ‘loser’ row. Most of the errors are not insurmountable but they are a distraction, and potentially confusing, especially since several occur in the exemplifying data.

References
