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D. Eric Holt (ed.), *Optimality Theory and language change* (Studies in Natural Language and Linguistic Theory **56**). Dordrecht: Kluwer Academic Publishers, 2003. Pp. 459.

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Theoretical historical linguistics unites areas of study that are often otherwise (sometimes sadly to their detriment) pursued separately. It can, at its best, contribute (i) to our knowledge of how language can change, (ii) to the fast-moving world of linguistic theory construction, and even (iii) to our understanding of the initiation and patterning of particular changes in particular languages. Several of the pieces in this volume, which grew out of a session on 'Optimal Approaches to Language Change', organised by the editor at the 2000 International Linguistics Association conference, successfully engage with (i) and (ii) or (iii), and some even with all three, showing the truly interdisciplinary nature of the best theoretical historical linguistics. In this review, unable to discuss everything, I will concentrate on issues relating to (i) and (ii).

Many of the theoretical issues addressed in this volume are inspired by Optimality Theory (OT), but several contributions deal with fundamental questions in theoretical historical linguistics that, although discussed here in OT terms, could equally be discussed in a framework-neutral way. The volume should thus appeal, beyond those who already have a commitment to OT to anyone with an interest in theoretical historical linguistics – or, at least, in theoretical historical phonology, for the book is unashamedly unbalanced in

its coverage. Twelve chapters deal with phonology, only two with syntax. This imbalance is not inbuilt in theoretical historical linguistics – there are significant streams of work in theoretical historical syntax – but it reflects the differing extent to which OT has penetrated the linguistic subfields. While it is the default framework in theoretical phonology, with only minority competitors, it is far less dominant in syntax.

Optimality Theory and language change has three parts. The first, 'Optimality Theory and language change: overview and theoretical issues', begins with the editor's introductory chapter 1, 'Remarks on Optimality Theory and language change', which provides descriptions of the chapters, a brief run-through of the history of (American) generative historical phonology and an introduction to OT historical linguistics. This is followed by chapter 2: Paul Boersma's 'The odds of eternal optimization in Optimality Theory'; 3: Randall Gess' 'On re-ranking and explanatory adequacy in a constraint-based theory of phonological change'; 4: Ricardo Bermúdez-Otero & Richard M. Hogg's (henceforth B-O&H) 'The actuation problem in Optimality Theory: phonologisation, rule inversion and rule loss'; 5: April McMahon's 'When history doesn't repeat itself: Optimality Theory and implausible sound changes'; and 6: Charles Reiss' 'Language change without constraint reranking'. This part contains most of the discussion of fundamental matters in historical phonology, reaching out beyond OT-exclusive issues.

Some of the chapters in the second part, 'Case studies of phonological change', will mainly interest those who know the particular data and diachronic events that are dealt with, but (especially) chapters 7 and 12 also address general issues of wider importance. Part II comprises chapter 7: Donka Minkova & Robert Stockwell's (henceforth M&S) 'English vowel shifts and "optimal" diphthongs: is there a logical link?'; 8: Viola Miglio & Bruce Morén's (henceforth M&M) 'Merger avoidance and lexical reconstruction: an OT model of the Great Vowel Shift'; 9: Haike Jacobs' 'The emergence of quantity-sensitivity in Latin: secondary stress, Iambic Shortening and theoretical implications for "mixed" stress systems'; 10: Conxita Lleó's 'Some interactions between word, foot and syllable structure in the history of the Spanish language'; 11: D. Eric Holt's 'The emergence of palatal sonorants and alternating diphthongs in Old Spanish'; and 12: Jaye Padgett's 'The emergence of contrastive palatalization in Russian'.

Part III, 'Case studies of syntactic change', contains chapter 13: Benjamin Slade's 'How to rank constraints: constraint conflict, grammatical competition and the rise of periphrastic *do*', and 14: Larry LaFond's 'Historical changes in verb-second and null subjects from Old to Modern French'. The volume concludes with a 'Bibliography on Optimality Theory and language change' and several detailed indices.

The syntactic papers adopt standard Government and Binding Theory/ Minimalism-type clause and phrase structure, but show that OT offers new

ways of conceiving of syntactic issues. For example, Slade models the rise of
do-support by promoting anti-movement and similar constraints above the
V+INFL constraint (paraphrasable as 'a verbal head must be attached to
Agreement, Tense and Mood features, i.e. no unbound inflection mor-
phemes'), and LaFond accounts for the loss of null subjects by suggesting
the demotion of DROPTOPIC ('leave arguments coreferent with the topic
structurally unrealised') below PARSE (which requires an input subject, like
everything else, to be realised overtly). In addition to this, though, the
authors of these papers are interested, respectively, in modelling variation
through partial constraint ranking as a better way of implementing the
speaker-internal 'grammar competition' model of change, and in the extra-
grammatical factors (such as speakers' preferences in expression) that might
be thought to have CAUSED the constraint reranking.

In this latter point, LaFond raises one of the fundamental issues that
several phonological chapters address, which touches on questions of ex-
planatory adequacy and the location of change in the speaker/adult-to-
hearer/acquirer chain: to what extent is the formal modelling that theoretical
historical linguists do a CAUSE or an EFFECT of a change? In OT, the question
is principally whether constraint reranking enacts change, or whether it
follows it. But the same question arises in rule-based frameworks: does
the addition (or loss, reordering, etc.) of a rule constitute a change, or is
it a reflection of a change that was caused by factors external to I-language?
This issue rightly runs through several papers. Gess makes it a centre-
piece of his thoughtful chapter, maintaining that standard reranking in
the lexical phonology does not explain change by itself. He argues,
following others, for the incorporation of phonetic motivation (of the
CONSERVEARTICULATORYEFFORT and cue-preservation type) into theoretical
historical phonology, but restricts cue-preservation constraints to a register-
dependent, inherently variable postlexical stratum which has stylistic and
lexical variation built in. He is surely right that speakers play a role
in change, but it is not immediately clear what causes reranking in their
register-dependent phonology, which is what eventually causes hearer-driven
phonologisation 'when there is a re-ranking of lexical phonology constraints
from one generation to another' (74). Nonetheless, Gess raises important
issues, and his basic position – that reranking follows change – is also
considered by others (e.g. Holt, M&S, Jacobs, Lleó and Slade).

Boersma seems to take the opposite position in his chapter, at least to
judge from his claims that specific constraints may 'fall from the top to the
bottom of the entire constraint hierarchy' (33), which causes constraints
whose effects had previously been hidden to have an effect and alter the
output. Boersma otherwise cleverly argues that – tied to OT-specific
argumentation and the assumption that occulted constraints are ordered
randomly and differently within the population – all changes of the particu-
lar set that he considers can be seen as improvements, even in what seem like

circular changes (once his non-standard constraints, features and other assumptions are allowed).

Gess' position on reranking and explanation ties in with points discussed by Reiss, who, in an important paper, sets out what we might call the 'acquisitionist' position in historical phonology: change ONLY EVER occurs in first language acquisition. Reiss clearly explains the acquisitionist case, a position which is widely assumed in the rhetoric of theoretical historical phonologists. Unusually, he also draws out its logical implication – that theoretical historical phonology cannot really be done. This is because we cannot consider 'constraint reranking' or 'rule addition' as anything other than a metaphorical manner of comparing differing synchronic grammars. It means that we cannot assume that a language's phonological structure can guide or constrain change, nor predict what is a possible change, because all we can do is compare pre-change/adult grammars and post-change/child grammars and work out the phonetics of Ohalaesque confusability that allowed the children to mistake the output of one grammar as the output of another (and consider the lexical restructuring that this effects). I think this is wrong, but to reject it, we need to reject acquisitionism – change must also be able to occur in post-acquisition grammars. Others in the volume also disagree with Reiss (including, overtly, McMahon and B-O&H), but they do not draw the anti-acquisitionist conclusion.

B-O&H take a masterfully argued third way between phonology-less acquisitionism and its opposite. They argue along lines similar to Reiss' for 'standard' sound change, which they see as the 'phonologisation of non-grammatical phonetic effects' (92) due to acoustic confusability and misparsing, and hence not really the province of phonology. Departing from Reiss, they insist that such changes ARE constrained by phonological structure, both universal and language-specific, contending that this can be implemented in acquisition through markedness constraints. In this they avoid the phonetic and diachronic reductionism that many have recently adopted (Reiss here, for example; see also Blevins 2004), but they do not really explain HOW language-specific phonological structure can affect first language acquisition (if it doesn't already exist in the child's grammar). They also differ from Reiss when modelling analogy, and contend that the mechanics of OT, or, rather, of the Stratal OT that they advocate, can best explain such change. They argue that phonological structure also constrains possible analogical reanalyses and that the lexical/input restructuring (which Reiss claims is the only thing that need be considered in modelling analogy) makes sense when seen as the OT-specific mechanism of Input Optimisation (B-O&H's Stratal-OT implementation of Lexicon Optimisation).

Several chapters address another fundamental point: how should we model the related issues of merger avoidance, chain shifts and contrast maximisation? In a significant chapter, M&S discuss four changes in sets of bimoraic vowels, including cases of merger, diphthongisation and dissimilation,

and changes to several vowels showing merger-avoidance. They argue that the latter should NOT be seen as ontological chain shifts, but rather as due to the interaction in ranking relationships of (i) functional pressures to 'optimise' the relationship between the two parts of diphthongs in the two classic ways (maintain contrast vs. minimise effort), formalised as phonetically-evaluated HEARCLEAR ('maximise the difference between the nuclear vowel and the following glide') and *EFFORT ('have the shortest possible trajectory'), and (ii) constraints on segmental contrasts and inventories, namely IDENTIO(contrast) ('preserve categorial contrasts') and MINDIST ('maximise the auditory distinctiveness of contrasts'). All of these are really families of detailed constraints, partially instantiating Flemming's (1995) Dispersion Theory (DT).

Padgett focuses on DT, linking it explicitly to Martinet's (1955) recognition of functional forces in change, and arguing that it allows theoretical historical phonologists to combine generative phonology's formal rigour with structural phonology's emphasis on the role of the system. This enables OT to evaluate whole languages, or, at least, to compare pairs of forms. Padgett employs *MERGE ('no output word has multiple correspondents in the input') rather than IDENTIO(contrast), but focuses on the 'maximise perceptual distinctiveness' impetus in DT (which he formalises as SPACE, rather than MINDIST), arguing that this is needed to understand the phonologisation of Russian palatalised consonants after yer-deletion and their contrast with what he claims are velarised consonants (creating two marked series of obstruents without their unmarked equivalent).

Holt also investigates systemic factors in change (using *MERGE) to account for the palatalisation of geminates in Spanish, whereas they were simply degeminated in Galician/Portuguese, where merger with singletons was not a danger. Insightfully, Holt links DT's evaluation of systemic factors to anti-acquisitionism and the causal relation of reranking and change: '[i]f systemic factors hold in the constraint hierarchy, then indeed the constraint reranking must occur first (in at least some speakers), with concomitant surface simplification' (304).

M&M focus on the English ('Great') Vowel Shift and argue (contra M&S) that such sets of changes SHOULD be seen as structurally coherent and connected. Indeed, they contend that the changes comprising the Great Vowel Shift all occurred concurrently and should be modelled through the reranking of feature-specific faithfulness constraints and constraints (on outputs, not systems) which penalise the addition of moras to particular vowels, thereby forcing raising and diphthongisation. The authors use constraint conjunction to prevent mergers, rather than *MERGE or similar, illustrating the non-Dispersion OT approach to this.

Jacobs makes a point of using only a few, well-attested constraints in his neat analysis of change in the basis of stress assignment in Latin. Lleó argues that Spanish vowel loss, due to exogenous influence, should be modelled as

constraint promotion, whereas endogenous change must involve constraint demotion. And McMahon's contribution is a skilfully constructed example of theory comparison in theoretical historical phonology. Her chapter is the most critical of OT in that she shows that OT is just as able as standard generative phonology to model 'impossible changes', such as the almost certainly nonexistent West Saxon Palatal Diphthongisation, thus weakening the claim that OT is more restrictive than rule-based approaches.

In sum, this volume contains some essential reading for any theoretical and/or historical phonologist and, to a lesser extent, syntactician. It shows how the latest theoretical ideas can open up new ways of understanding change in general and in the specific sets of (mostly Romance and Germanic) historical data dealt with. Many of the 'fundamental' issues addressed are not OT-specific, but are no less interesting for that, and there are also cases, perhaps most clearly in Boersma's, B-O&H's, M&S's, Jacobs', Padgett's and Slade's chapters, where the architecture of OT is argued to offer novel possibilities for understanding change. Conversely, there are cases where the specifically historical nature of the data informs the theoretical machinery argued for within OT (for example, in modelling merger avoidance and in adopting stratal structure), showing how theoretical linguistics can learn from an engagement with diachrony. The book is well produced and packed full of ideas. It deserves a place in every linguistics reference library.

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This book contains ten articles that were presented at the Workshop on the Cartography of Syntactic Positions and Semantic Types, held at Certosa di Pontignano (Siena) on 25–26 November 1999. It is part of a series of three