The Cambridge handbook of phonology

Edited by Paul de Lacy


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Introduction

Any recent book with a title such as “Handbook of Phonology” invites comparisons to the 1995 Handbook of Phonological Theory edited by John Goldsmith and published by Blackwell. It is clear that phonological theory has changed significantly since the early 1990s, and this is reflected in the current volume. One main difference is that by far the majority of the 25 chapters in The Cambridge Handbook of Phonology (hereafter CHoP) have a theoretical emphasis and cast their reporting and analysis in terms of Optimality Theory (OT), the currently dominant theory. Thus in some ways, CHoP might be more revealingly titled “Optimality Theory applied to various issues in phonology.”

One consequence of this is that the organization of CHoP seems tighter in terms of topics than the Goldsmith volume. As can be seen from the Contents below, it is divided specifically into five “Parts,” each with a particular focus. However, it has less emphasis on language data and families than Goldsmith. Goldsmith had many chapters on theory, but also on specific language families and even languages (American Sign Language, Ethiopian, African tone versus Asian tone, Hausa, French, Spanish, Japanese, Semitic, and Slavic), and even miscellaneous topics such as language games and experimental phonology. In short, it had a wide variety of types of papers. In CHoP, there is no focus specifically on phonology of individual languages or language families, though of course individual languages are commonly referred to.

Chapters in Goldsmith that have direct analogues in CHoP include “The Syllable,” “The syntax-phonology interface,” “Feet and metrical stress” (by the same author in both volumes!), and “Acquiring phonology.”

The contents of CHoP include:

1. Themes in phonology – Paul de Lacy
Part I: Conceptual Issues

2. The pursuit of theory – Alan Prince
3. Functionalism in phonology – Matthew Gordon
4. Markedness in phonology – Keren Rice
5. Derivations and levels of representation – John J. McCarthy
6. Representation – John Harris
7. Contrast – Donca Steriade

Part II: Prosody

8. The syllable – Draga Zec
9. Feet and metrical stress – René Kager
10. Tone – Moira Yip
11. Intonation – Carlos Gussenhoven
12. The interaction of tone, sonority, and prosodic structure – Paul de Lacy

Part III: Segmental phenomena

14. Local assimilation and constraint interaction – Eric Baković
15. Harmony – Diana Archangeli and Douglas Pulleyblank

Part IV: Internal interfaces

17. The phonetics-phonology interface – John Kingston
18. The syntax-phonology interface – Hubert Truckenbrodt
19. Morpheme position – Adam Ussishkin
20. Reduplication – Susanne Urbanczyk

Part V: External interfaces

22. Variation and optionality – Arto Anttila
23. Acquiring phonology – Paula Fikkert
24. Learnability – Bruce Tesar
25. Phonological impairment in children and adults – Barbara Berhardt and Joseph Paul Stemberger

I will not attempt to give a detailed summary of all these chapters, but comment on each, and on overall themes as well.
Summary of chapters

The introductory chapter, “Themes in Phonology” by de Lacy, gives a very good overview not only of OT, but its recent development and also an excellent overview of recent literature in the field (including, for example the W/L notation for tableaus as an alternate to the more widespread “star” (*) notation for violations of constraints). For those whose exposure to OT is a bit sketchy, this is an essential chapter for understanding the other papers and putting them into a larger context. He points out, significantly, that there are a wide variety of approaches even within OT, that is, OT is not a unified theory. For example, his “pre-reading discussion” of issues discusses how representation is handled (or ignored) in OT, and how functionalism has become a significant approach (in the thinking of some).

The CONCEPTUAL ISSUES section of the book begins with Prince’s chapter “The pursuit of theory” and Gordon’s chapter “Functionalism in phonology,” which illustrate two complementary approaches: the formalist and the functionalist. Functionalism is generally regarded as being connected with phonetic factors, whether articulatory or perceptual. Even for the formalists, if a constraint can be tied to some phonetic “ease of articulation” or other phonetic factor, that is regarded as increasing the plausibility of that constraint. Gordon surveys several areas where phonetic factors can drive an OT analysis, as well as a couple of other functional factors. This connects somewhat to the “Phonetics-phonology interface” chapter of Kingston later.

Rice’s chapter on “Markedness” offers a useful review of the traditional constellation of properties by which a segment or feature can be termed “marked,” as well as how a segment can be initially identified as marked (frequency, implication). Another diagnostic is that the unmarked emerges in epenthesis and neutralization. She also shows additional complexities involved, e.g. a segment may have a tendency to be unmarked cross-linguistically, but this is highly inventory-dependent. Interestingly, she presents a different basis for markedness than does deLacy (2006), the editor of this volume.

McCarthy’s chapter on “Derivations and levels of representation” notes that almost all phonological models posit at least an underlying and surface level of representation, though some have more levels. He reviews the SPE approach to rule interaction, including feeding, bleeding, counterfeeding, and counterbleeding orders. These last two are covered in the term “opacity,” and he notes that these are the best arguments for language-particular rule ordering. Opaque interactions are real and synchronically productive, and any theory of phonology must account for them. He notes that there is no consensus in current theory on how to handle opacity, mentioning several, but spends some time illustrating the Stratal OT approach of Kiparsky, noting its apparent failure to handle a Bedouin Arabic example. His final topic, connected with opacity, is cyclicity and approaches in OT to that.

Harris’ paper (“Representation”) offers a historical view of how segments and suprasegmentals have been represented, starting from linear representations such as SPE. He also discusses the view that the fundamental units are not intrinsically binary features, but are physiological dimensions such as formant frequency, degree of jaw lowering, etc., and that traditional categorical features emerge out of these. He goes over the question of valency in some detail – whether features should be considered binary or unary (monovalent). Next is the rationale for
non-linear autosegmental and Feature Geometry models, commenting that Feature Geometry may have been rendered superfluous by feature classes. Underspecification is also discussed briefly, including the view that OT also renders this superfluous. Prosodic structure (syllables and a bit on feet and metrical stress structure) is treated separately from segmental structure, which connects with Hall’s chapter later.

Steriade’s chapter on “Contrast” reviews challenges to traditional notions of contrast. She discusses the tension between feature economy and dispersion, but notes that these alone are insufficient to account for attested inventories. She reviews previous phonological theories for underlying and surface contrasts, especially Lexical Phonology, comparing it to OT, and is the first in this volume to illustrate factorial typology, showing how different rankings of constraints yield different systems, most of which have been attested.

The PROSODY section of the book begins with Zec’s chapter on “The syllable,” a valuable overview of the topic, especially on sonority issues. He first briefly reviews evidence for the existence of the syllable (which, after all, has no consistent phonetic correlate). He next discusses in some depth the linear organization of the syllable and typology in terms of CV units, giving an OT account of both structures and syllable-driven phonology. He next turns to the hierarchical organization of syllables, including weight and moras. Sonority peaks have been one way to decide on numbers of syllables, and Zec discusses definitions and applications of sonority in some detail, especially with the notion of “sonority threshold,” with a variety of languages.

Kager’s “Feet and metrical stress” first describes stress and its lack of reliable phonetic correlates, and notes its cross-linguistic properties such as culminativity and rhythm. In discussing the formal representation of stress, he illustrates the grid, trochaic and iambic feet. He then shows how feet are parsed and analyzed by OT, depending on directionality. He inventories and analyzes different typologies of stress, and shows how the foot as a phonological unit is active in many languages, even apart from stress conditions, such as minimal word conditions.

I choose the chapter on “Tone” by Yip as representative to illustrate the emphasis on theory in preference to focusing on describing typological phenomena. Yip gives a good though very brief survey of definitions, conventions in tone transcription, and basic tonal phenomena, mentioning several topics without exemplifying them. There is only one sentence mentioning tonogenesis, for example, though there is an extended example in Kingston’s chapter. After five pages describing tone phenomena, she spends four pages on tonal features and autosegmental representation, then twelve pages on their OT analysis, concluding with two pages about other issues. There is a focus on Chinese and Bantu languages, but more as an exemplification of OT machinery than a survey of tonal phenomena. To read this, for example, one would never know that “tone doubling,” where a single H tone in Bantu spreads over two syllables, is an extremely common phenomenon. One would get a fair idea of how OT handles some tonal phenomena, but not an in-depth look at what tone phenomena exist.

Gussenhoven’s “Intonation” chapter overlaps somewhat with tone, in discussing phonetic factors such as declination and peak delay. He reviews basic concepts of “boundary tones,” using the abstract H and L for relatively high and low pitch, and pitch accent. He reviews the history of representation of intonation from early pitch movement ideas to autosegmentally-based notions,
including the notion of floating autosegmental tones. Interpolation means that not every syllable must be specified for a tone. As the reader may have surmised, there is considerable conceptual overlap between Gussenhoven’s intonation concepts and what might be termed more purely tonal concepts. However, he does provide quite a bit of information about phonetic implementation.

Prosody is rounded out by an interesting chapter – de Lacy’s “The interaction of tone, sonority, and prosodic structure” – an attempt to show more explicitly the connections between the previous chapters. He illustrates with an extended analysis of sonority-driven stress in Takia, using the sonority hierarchy, and later, when discussing feet and tone, a tonal hierarchy. Neutralization, deletion, metathesis, and coalescence also come in for brief discussion.

The section on SEGMENTAL PHENOMENA begins appropriately enough with Hall’s “Segmental features,” a thoroughly documented summary of the current state of evidence and controversies about segmental features and their organization. Assuming a basic Feature Geometry model, she divides the discussion into sections on major class features, laryngeal features, manner features, and place features, also including discussion of contour and complex segments. Topics such as binarity/privativity and whether consonants and vowels have the same set of place features, are also presented. I personally would have wished a more informed discussion of multiple articulations. This is one of the few chapters which has no OT analysis or even references.

Baković’s brief chapter on “Local assimilation and constraint interaction” is a look at a particular phenomenon, assimilation between adjacent segments (“local”), specifically within OT. There have been many constraints proposed to handle local assimilation in OT (e.g. AGREE(F), PAL, SPREADPLACE, ICC(F), *F_iF_j), and it has been somewhat embarrassing that this most common phonological process has not had a standard way of expressing it in OT. Baković uses AGREE(F), and perhaps this will become standard. He discusses how OT handles blocking of assimilation because of dominant faithfulness constraints, and also deletion and epenthesis strategies that languages use to avoid violating AGREE(F).

In Archangeli and Pulleyblank’s chapter, “Harmony” is distinguished from assimilation in that the segments which become more alike are often non-adjacent. They note that harmony is not a technical term, and may or may not use the same set of OT constraints that account for assimilation, for example. They first present a general harmony scheme, and then discuss variations on that such as blocking, domains, directionality, and especially transparency. Especially interesting is their conclusion that properties of harmonic systems are properties of phonology in general, and there is no need to have a theoretically distinct construct labeled “harmony.” This is an excellent summary of harmony patterns in the languages of the world.

Alderete and Frisch’s example-rich “Dissimilation in grammar and the lexicon” notes that dissimilation has been discussed from several points of view. They summarize discussions of diachronic phonetic hypercorrection as a source of synchronic dissimilation, the OCP as a formal representational device, and OCP-like markedness constraints in OT. They then turn to more recent probabilistic and statistical approaches, since it has been known for some time that languages do not always have an absolute prohibition on adjacent identical segments (or
features). It appears that both categorical and gradient patterns can be learned, and future research must address the interface between these.

This offers an appropriate lead-in to the next section, on INTERNAL INTERFACES, “internal” referring to different areas of linguistics. Kingston begins with “The phonetics-phonology interface.” Linguistic opinion has ranged from excluding phonetics from phonology altogether, to asserting that all phonology is phonetics. Kingston, steering a middle course, discusses three relations between the two. First, phonetics helps define the set of distinctive features to phonology, generally auditory rather than articulatory. Second, phonetic factors explain many phonological patterns, e.g. inventory content (especially discussing vowel system inventories) and sound change (he specifically focuses on tonogenesis). Third, phonetics provides the actual implementation of phonological representations. His thorough sketch (if I can use that oxymoron) includes a rich look at all of these.

Truckenbrodt’s “The syntax-phonology interface” assumes a prosodic hierarchy of syllables, feet, prosodic words (“p-words”), prosodic phrases (“p-phrases”), and intonational phrases (“i-phrases”). P-phrases often relate to syntactic phrases such as NP, and i-phrases often relate to syntactic clauses. In the past, there have been various models of syntax-phonology interaction, and he espouses an OT model more in sympathy with the pre-OT indirect reference account of Nespor and Vogel (1986) than the direct reference model espoused by Kaisse (1985). That is, p-phrases are constructed (“aligned” in current OT terminology) with respect to either the left or right edge of a syntactic phrase. Though cases from Xiamen Chinese and Chichewa are briefly examined, a major emphasis is on English, German, and Dutch stress.

“Morpheme position,” Ussishkin’s contribution, examines how phonology influences the positions of morphemes. The main idea is that Generalized Alignment will always favor prefixes and suffixes to align to the left and right edges, but well-formedness constraints may override this, yielding what have commonly been termed infixes. In this view, an infix is a prefix or suffix whose normal edge-alignment is overridden by other constraints. He illustrates with the Tagalog um-, now called a prefix and Ulwa -ka, now called a suffix. A major part of the paper deals with Semitic nonconcatenative morphemes, what have been called “interfixes.” He assumes an underlying specification of vowels, rather than unspecified vowels. Affix vowel faithfulness is then taken to outrank root vowel faithfulness (unlike the approach in Casali 1995), and so the affix vowels replace the root vowels.

Urbanczyk’s chapter on “Reduplication” largely follows McCarthy and Prince’s (1995) Correspondence Theory approach. There is a Base and a Reduplicant, and various constraints determine how faithful the Reduplicant is to the Base. She does not discuss a recent viable alternative, Inkelas and Zoll’s (2005) Morphological Doubling Theory, which examines a wide variety of phenomena, some of which are problematic at best for Correspondence Theory.

The EXTERNAL INTERFACES section is in some ways a catch-all category, as is seen from the titles.

Bermúdez-Otero’s “Diachronic Phonology” gives a thorough review of sound change issues as they pertain to phonological theory (e.g. is sound change gradual or abrupt?), which connects to
whether lexical representations contain gradient phonetic detail. Sound change is also seen to relate to both formalist generative and functionalist approaches, which are discussed in some detail.

This also connects to Anttila’s paper, “Variation and optionality,” in that diachronic change presupposes a state of variable pronunciation of words. Anttila notes the sources of variation, but also presents three theories of variation proposed in the literature: multiple grammars, partially ordered grammars, and stochastic optimality theory, for all of which he presents sample data and OT analysis. These involve language-internal factors, but he also notes external factors such as age that play a role. He finishes by reminding us that the quantitative approaches necessary for this type of study depend on large corpora of data.

“Acquiring Phonology,” by Fikkert, notes that studies of how children normally acquire language can shed insight on phonological representations and the entire phonological system. This is a fascinating chapter for one like me who has not had much exposure in this area. She notes that acquisition studies have adapted whatever phonological theory is current at the time, from SPE-type rules to Feature Geometry representations to the constraint-based systems in vogue now, which she discusses more fully. Tidbits of information include that children acquiring Germanic languages tend to initially produce words that are either monosyllabic or disyllabic trochees, but those learning Romance languages initially produce very few monosyllables. Interestingly, evidence from production studies generally suggests acquisition patterns contradictory to those suggested by evidence from perception studies, and much more synthesis is needed.

“Learnability,” by Tesar, involves the more computational proposals of language learning, ideally, informed by the acquisition studies summarized in the previous chapter. In this paper, Tesar uses Optimality Theory as his framework, and summarizes several proposals for language-learning algorithms in terms of reranking of (universal) constraints. He thus summarizes how Optimality Theory can formally account for the changing phonologies that children exhibit in the process of developing an adult phonology.

The final chapter, “Phonological impairment in children and adults” by Bernhardt and Stemberger, is the only paper that does not assume normal speech. They organize their presentation in terms of markedness, representations, and interactions of phonology with morphology. For example, markedness in atypical children learners may be simply delayed, but also at times reversed, as when fricatives are learned before stops. The same topics are then discussed in terms of adults who have lost normal neurological functioning.

**Comments**

These papers are quite good summaries of the state of knowledge and research in their subfields, and most could be termed “state of the art” papers. As summaries, most will benefit from rereading and looking up the many references cited. A good number of the authors are relatively young scholars. Being included in this work will be a significant contribution by them, since I anticipate this book to be a standard reference for some years to come, as was the Goldsmith volume.
As mentioned, most of the authors center on OT analyses, but some don’t. “Harmony” (Archangeli and Pulleyblank) describes various vowel and consonant harmony systems, and the parameters by which they can vary, but they don’t bring in OT. “Markedness in phonology” by Keren Rice also discusses complexities of markedness with no specific OT analysis, though she does refer to OT. “Representation” by John Harris refers to OT but offers no tableaus or detailed arguments. Kingston’s “The phonetics-phonology interface” also does not center on OT. It will be interesting to see if these, not so tied to a specific contemporary theory, will be the contributions that will be more cited two decades from now.

A difference that I see from the previous Goldsmith volume is connected to the OT emphasis – that is, the huge reliance on sources from the online Rutgers Optimality Archive. To some extent this reflects the current trend toward web publishing, but also, as has been pointed out by others, the ROA is not a refereed journal, though submissions are of generally high quality. However, the lack of going through a formal refereeing process is not a positive trend in the discipline of linguistics, I believe.

No matter how exhaustive a volume, a specialist can always find a topic that is lacking. Personally, I find the lack of any discussion of multiple articulations disappointing. A more broad omission, however, is the lack of any mention of the phonology of signed languages, which is developing quite an extensive literature. It had a chapter in Goldsmith’s volume, but not in CHoP.

One major benefit of the volume is the list of references – quite an extensive list of recent phonological work – available for follow-up reading. An Index of Subjects and an Index of Languages and Language Families are included, which are also quite helpful.

The volume is generally well edited – a spot-check of references as well as a reading of all papers revealed few typos or mistaken or omitted references. For a volume of this size, almost 700 pages, this is no small feat. A few errors include “Rice (forthcoming)” (p. 87) being listed as “Rice (to appear)” in the references, Łubowicz is cited as Lubowicz (p. 114), Steriade 1999c (p. 133) isn’t in the references, and Mutaka (1995) is listed in the references with no title of the paper.

There is a web site maintained by Paul de Lacy and Rutgers University devoted to the book at http://handbookofphonology.rutgers.edu/index.php, which includes a search function, discussion list, and a list of errata, to which I will add those in the above paragraph.

Overall, this volume is an excellent overview of the state of phonological theory today, and offers a departure point for a rich look at the relevant literature as well.

References


