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Toni Borowsky, Shigeto Kawahara, Takahito Shinya, and Mariko Sugahara (eds.), *Prosody Matters: Essays in Honor of Elisabeth Selkirk*

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1. Introduction

“Prosody” is like a bag of tricks stuffed with anything beyond traditional segments; syllables, feet, words, and phrases are familiar units in linguistics as well as in everyday language-use. We all know it “matters” a lot in a conversation. *How* we say a string of segments often matters more than *what* the string itself is. However, phonologists and morphologists had been mostly concerned with segments (or a bundle of features, and their concatenations) until the 1970’s. Lisa Selkirk is one of the leading scholars who turned our eyes to “prosody.” Her influential monographs and journal articles defined appropriate units beyond segments and provided useful tools and methods to deal with prosodic phenomena in and across languages (Selkirk, 1978; 1984). Those units and their hierarchical structure are depicted in Figure 1.

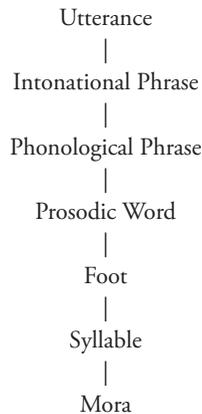


Figure 1: Prosodic Hierarchy (Ito & Mester, this volume, p. 281).

This book is a collection of 16 papers dedicated to Lisa by her former students and colleagues at University of Massachusetts, Amherst. Papers are divided into 4 sections: [1] Mora and Syllable; [2] Foot and Prosodic Word; [3] Phrases and Above; [4] Prosodic Hierarchy and Semantic Interpretation (Focus). These section titles promptly indicate the breadth of the area covered by the term “prosody” and each paper literally tells us how it

“matters” in the current trends in linguistic research.

In addition, this book is situated in a series called *Advances in Optimality Theory*. However, approaches in each paper are not confined to an optimality theoretic one but more diverse. Many of the papers deal with some type of interface among different components of a grammar, such as phonology, syntax, and semantics. Quite a few papers can even be categorized as experimental phonetics. Thus, this book happens to be a handy showcase of a variety of approaches and areas in the field of linguistics.

Put differently, there are two dimensions that are useful to survey the contents of this book: (i) prosodic domains, and (ii) approaches. So, let me start the main part of the review with a graphical representation of these two dimensions onto which each of the papers is mapped.

2. Map

Here is a list of authors and shortened titles of all the papers. The numbers in the box are used in the following figure to indicate the location of each paper on the map.

- 1 Bensoukas & Boudlal: Schwa in Moroccan Amazigh and Moroccan Arabic.
- 2 Pater: Serial Harmonic Grammar and Berber Syllabification.
- 3 Smith: Onset Constraint and Korean Syllable Structure.
- 4 Basri et al.: The End of the Word in Makassar.
- 5 Myers: Final Devoicing.
- 6 Padgett: Russian Voicing.
- 7 Sugahara: Prosodic Word Prominence in English.
- 8 Hellmuth: Edges in Egyptian Arabic.
- 9 Ito & Mester: Recursive Prosodic Phrasing.
- 10 Kawahara: Intonation of Nominal Parentheticals.
- 11 McCarthy: Pausal Phonology and Morpheme Realization.
- 12 Tokizaki: Reconsidering the Edge Parameter.
- 13 Carlson et al.: Intonational Phrase Boundaries.
- 14 Féry: Prosody and Information Structure of the German Particles.
- 15 Hirotani: Prosodic Phrasing of Wh-questions in Tokyo Japanese.
- 16 Truckenbrodt: Effects of Indefinite Pronouns and Traces on Verb Stress.

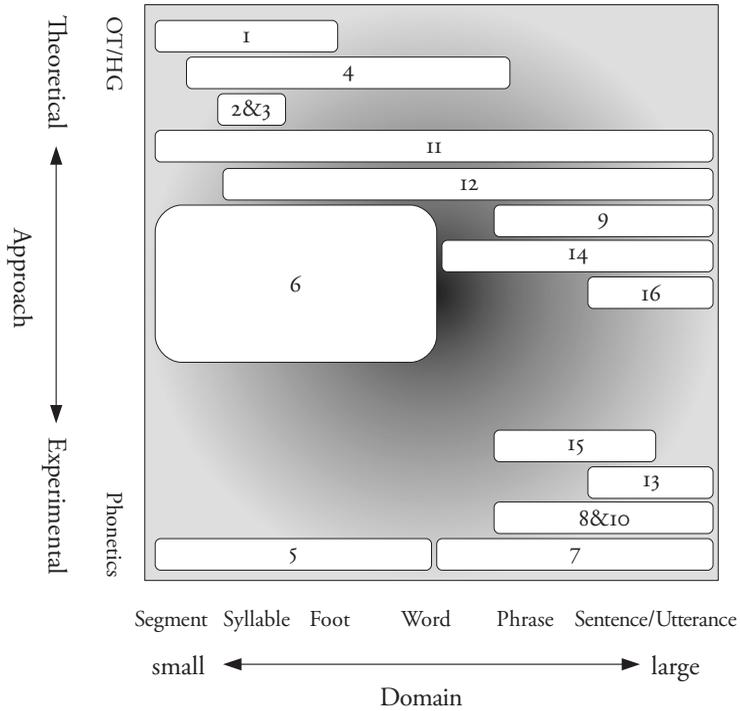


Figure 2: A map of all the papers on an abstract space defined by domain size and theory/experiment-orientatedness.

Let me briefly summarize each paper along with some reasons and background as to the location on the map. Bensoukas & Boudlal discuss the behavior of schwa in Moroccan Amazigh and Moroccan Arabic. The former language is also known as Berber, which has a historically different origin from Arabic. Their morphological systems and stress patterns are very much far apart. However, the behavior of schwa in the two languages is quite similar: syllables containing a schwa never attract stress even though they are closed. The proposed analysis is that the schwa and the following consonant share a branching mora, which sets the syllable weight to be light. The analysis is given within the framework of “classic” OT (Optimality Theory: Prince & Smolensky, 1993/2004). A theoretical implication here is that the prosodic similarity is due to the ranking of relevant constraints, which had been shared by the two languages through language contact. Here, the behavior of a particular segment is explained with respect to mora, syllable, and foot as the relevant domains. Thus, the rectangle for 1 spreads wide along the x-axis.

J. Pater discusses the data from Imdlawn Tashlhiyt Berber, which has been a famous example for introducing the beauty and the power of parallel computation in OT. However, he claims that a better analysis can be achieved by a serial version of Harmonic Grammar (HG; Legendre et al., 1990). Harmonic Grammar is a sibling of OT where constraints are not just ordered but numerically weighted. Serialism is another step away from “classic” OT in which more than one step is necessary to obtain the final output.

A general theoretical advantage of HG over OT is a flexible treatment of gang-up effects. That is, two or more light-weighted constraints can work together (=gang-up) to overcome the effect of a heavy-weighted constraint. Pater claims that this advantage can explain the general preference for high sonority nuclei in addition to the restriction of low-sonority element in the phrase-final position.

Serialism in OT/HG adapts the idea that only one change at one evaluation is possible and the evaluation can be repeated as many times as necessary. Pater compared all 4 types of combination: Parallel OT, Parallel HG, Serial OT, and Serial HG, and found that a parallel version of HG produces typologically impossible patterns. To reconcile the advantage of HG mentioned in the last paragraph, the only viable approach is Serial HG.

The domain at issue is only the syllable and the argument is purely theoretical in Pater’s analysis. Thus, [2] occupies the smallest area close to the top-left corner in the map, but the theoretical scope of the paper is wide and long.

J. Smith’s attempt is to redefine the notion of onset formally because the ONSET constraint in ‘classic’ OT only says “a syllable must have an onset.” Her version of the ONSET constraint requires that the head segment of a syllable not be initial in the syllable. This definition allows that both [j{a}] and [j{ja}], where the {} notation indicates segments contained in the syllable rime, satisfy the constraint because [a] as the head of the syllable is not the leftmost segment in either case. This approach does not need to refer to sonority values nor a [+consonantal] feature of [j] and can account for the facts of glide distribution in Korean. Again, the domain at issue is only the syllable and the argument is purely theoretical. The area for [3] is analogous to that of Pater’s analysis.

Basri et al.’s paper deals with the behavior of suffixes and clitics in Makassar languages spoken in Indonesia. In essence, true suffixes are part of a phonological/morphological word while clitics are directly attached to the phonological phrase as in Selkirk (1999). Their different phonological patterns with respect to stress, epenthesis, gemination, and stop alternation are all due to this structural difference. A detailed analysis within the framework of “classic” OT reveals that the interaction of ANCHOR (STEM, SYLL), Output-Output correspondence, and CRISPEGE (FOOT) accounts for the emerging pattern. In terms of the map, this paper deals with the behavior of “less-than-a-syllable” material (=suffixes and clitics) explained in terms of the structure up to a phrase.

S. Myers gives a rigorously phonetic approach in contrast to the 4 papers so far, on the issue of devoicing at utterance-final position. First, a literature survey over 30 languages and L1/L2 acquisition suggests that phonological final devoicing emerged diachronically as a

result of listeners' identification error, which is due to articulatory and acoustic properties of voicing in prepausal position. Next, a production study of English was conducted where 20 minimal pairs, such as "proof-prove" and "feet-feed," in sentence-medial and sentence-final position were recorded. The results show that there are three acoustic cues for voicing: constriction duration, the duration of the voiceless interval, and the V/VC duration ratio. Then, a perception experiment was conducted to determine the identification process of voicing in utterance-final position. The results indicate that sentence-final fricatives are biased toward voiceless, but stops are not. Though his experiments employ the sentence-final position as an important independent variable, there is no finer distinction sensitive to various levels of phrases. In fact, his argument is ultimately pointing to a phonologization of devoicing at the word-final position. Thus, [5] in the map spreads out from segment to word.

J. Padgett also discusses final devoicing in Russian with an approach incorporating phonetic details into phonological constraints: a cue-based theory advocated by Steriade (1997). Perceptual properties are directly referred to in a cue-based version of a constraint. For example, IDENT_{CUE}(VOICE) constraint is formulated as "An output obstruent of cue strength X or higher, and its input correspondent, have identical values for the feature [voice]" (p.196). Now, X is a variable for various prosodic domains as well as sequences of segments: it can be a phonological word, phrase, or a position before a sonorant, for example. Cue strength for a given X is specified based on perceptual criteria. In the case of voicing, perceptual cues are more available in the pre-sonorant position than in the word-final position because the burst properties and voice onset time are perceived better before a sonorant than before a pause. Intricate devoicing facts in Russian are well accounted for with this powerful mechanism. This paper apparently looks like a theory-oriented analysis, but the cue-based approach entails so much phonetics that the height of the box for [6] is extended.

M. Sugahara investigates the effects of phonological word (PW) prominence on the durational adjustments of vowels in English. Duration of stress-controlled word pairs, such as *digest* and *digést*, were analyzed. The results show that the PW prominence has a lengthening effect on the duration of the main stress foot. In addition, phrasal prominence has a cumulative effect on duration, which suggests a durational adjustment at the level of phrases or even sentences. This is a typical phonetic, or laboratory-phonology style of research where the phonetic correlates of a certain abstract category is sought.

S. Hellmuth investigates cues for prosodic phrasing in Egyptian Arabic. One of the motivations for the study is given by the fact that cues for prosodic edges are not well-established for Egyptian Arabic in the literature. A detailed list of possible cues, such as boundary tones, downstep, phrasal tones, lengthening, pause, pitch reset, and so on are explored. Inter-speaker variation and speech rate effects are also considered. The results show that multiple phonetic cues are available to listeners and they have the freedom to interpret the cues in different ways. One thing that is consistent is that the right edge of the

subject XP always has stronger cues than other category boundaries.

J. Ito and A. Mester propose a revision of the prosodic hierarchy concerning the distinction of Major phrase and Minor phrase in Japanese. Minor phrase is larger than a phonological word and has been considered as the domain of accent culminativity and initial rise (Selkirk & Tateishi, 1991). For example, /azárashi-ga/ ‘seal-NOMINAL’ has a pitch accent on the second syllable /za/ with a high tone, and a low tone of initial rise on the initial syllable /a/. Major phrase is even larger than Minor phrase but smaller than an utterance and has been considered as the domain of downstep which sets a limit on the pitch of successive accents (Poser, 1984).

The revision is to abandon the two phrasal categories altogether and to allow recursions of phonological phrase as many times as necessary. This move radically simplifies various names and categories between phonological word and utterance: Major, Minor, Intermediate, Intonational, Accentual, etc. Their proposal is purely theoretical in spite of the fact that relevant facts are obtained mostly from pitch measurements. Thus, [9] occupies the theoretical side spanning from word to utterance in the map.

S. Kawahara’s paper concerns the intonational properties of nominal parenthetical construction, or side-remarks without tense, in Japanese. One example sentence used in his experiment is ‘Aemono, iwayuru gomayogoshi-o tsukuttemita (I made mixed salad, that is, sesame salad)’ where ‘iwayuru’ introduces a parenthetical expression. Pitch measurements comparing parentheticals with other structures reveal that pitch reset, initial rise, as well as other boundary tones are significantly different for parentheticals. A theoretical implication of this finding is that the left edge of parentheticals matches with that of Intonational Phrase in the prosodic hierarchy.

J. McCarthy analyzes phonological alternations in pausal forms in Classical Arabic using a serial version of OT. The central issue is that various ways, such as epenthesis, apocope, and metathesis all converge on the same result: pausal forms must end with a heavy syllable. A particular theoretical framework adapted in this paper is Optimal Interleaving theory proposed by Wolf (2008) in which morpheme realization is interleaved with phonological operations. Here, segmental operations are linked to utterance-level units in prosody as well as some of the intermediate ones for clitics. Thus, [11] shows an end-to-end width on the domain dimension on the map.

H. Tokizaki argues that the bare mapping from syntactic categories onto phonological boundaries can correctly predict patterns of phonological phrasing in Shanghai and other Chinese dialects. The bare mapping approach is a revision of edge-based theory of syntax-prosody mapping where the edge parameter is essential to align either the left or the right edges of the two components (Selkirk, 1986). He shows that the role of edge parameter can be replaced by the head parameter in syntax, i.e., the linear order between head and complement. This approach can explain the phrasing difference between Shanghai and Xiamen dialects, which was previously attributed to the opposite edge parameter setting, due to a simple fact that the size of a syllable is different in these dialects. The scope of this

paper is again horizontally wide, from syllables to utterances.

K. Carlson and others investigate the role of boundary tones to interpret an ambiguous VP Ellipsis sentence, such as: “John said that Fred went to Europe and Mary did too.” The elided VP “did” may either correspond to “went to Europe,” or “said that Fred...” A set of 5 perception experiments using carefully controlled natural and resynthesized speech material was conducted. The overall results show that the L% boundary tone was interpreted as a marker of the end of a clause, not the end of a sentence, while the H% boundary tone was able to give the “continuation” impression in any conditions. The scope of this paper is thus confined to sentence-size units as in [13] on the map.

C. Féry discusses the meaning and the pitch accent of German particles *selbst* ‘self,’ *wieder* ‘again,’ and *auch* ‘also.’ The meaning here is not lexical but intonational, that is, the difference in pitch accent can signal the scope of focus on the particle, or on the other parts of the sentence. She argues that the informational structure of both the particle and the rest of the sentence is crucial to a successful analysis of the situation. “Particles” here corresponds to a word-size unit and its effect on focus is interpreted in a sentence-size unit, which is depicted by [14] on the map. This paper has no phonetic measurements but is based on purely theoretical considerations.

M. Hirotani deals with the prosodic phrasing of ambiguous wh-questions in Japanese. In contrast to the previous chapter, this paper is mostly experimental where participants were asked to read target sentences. Pitch measurements were done to look for Major phrase boundaries. The results indicate that the insertion of a Major phrase boundary is optional and sensitive to the information status of the matrix verb. Thus, wh-scope and prosodic phrasing are not uniquely mapped onto each other.

H. Truckenbrodt discusses the absence of phrasal stress on the verb conditioned by various syntactic properties, such as traces of the direct object and indefinite pronouns in the sentence. The analysis is solely based on syntactic structures with little reference to phonology.

3. Conclusion

In this section, I would like to point out a few overall characteristics of the papers in this book and a possible future direction for some of the studies. As shown in the map in Figure 2, the diversity of the papers in the theoretical-experimental dimension is so wide that it is almost inconceivable for a single researcher to catch up with all the theoretical and practical issues. However, from a very general standpoint, three trends can be observed throughout the papers: (1) find more evidence for existing prosodic categories in the hierarchy: [4][5][7][8][13][15]; (2) redefine the prosodic hierarchy: [3][6][9][12]; (3) find new interfaces or interactions across multiple levels in the prosodic (and non-prosodic, such as morphological or syntactic) hierarchy: [1][2][10][11][14][16]. This classification is subjective and may be overlapping, but I believe these three also are the directions for future studies in phonetics

and phonology, and this book is a nice source of imagination and inspiration for you to kick off a new research project.

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