

A Review on the Book of Prosodic Studies: Challenges and Prospects

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Abstract: Prosody is one of the core components of language and communication wouldn't be effective without prosody. In the past few decades, a substantial literature on prosody has emerged, but the precise nature of prosody continues to be unclear and many basic questions concerned remain to be unresolved. The focus of this new book edited by Hongming Zhang and Youyong Qian is to offer a comprehensive and thoughtful examination of a wide range of topics related to prosody. It brings together the most recent research in prosody and also charts influence on some diverse fields such as multimedia communication and language acquisition. The chapters of the book are well organized: the first part discusses the prosodic hierarchy and prosodic units; the second part focuses on prosodic patterns; the third part addresses the interface issues between prosody and morphosyntax; the last part deals with prosody both in first and second language acquisition, which is arranged from ontological research on prosody to applied research on prosody. In this book review, the content of each chapter in this book will be introduced in turn and the points that need further discussion will be examined in detail combined with the relevant linguistic theory or related language phenomenon.

Keywords: Prosodic Hierarchy, Prosodic Patterns, Interface Between Prosody and Morphosyntax, Second Language Acquisition

1. Introduction

The focus of this new book edited by Hongming Zhang and Youyong Qian is to explore the nature of prosody within different theoretical framework and through different research methods. Prosody is one of the core components of language and communication wouldn't be effective without prosody. In the past few decades, a substantial literature on prosody have emerged, but its precise nature continues to be unclear and many basic questions concerned remain to be unresolved. As stated in the title, the papers collected in this book not only challenge the current prosodic studies, but also indicate the research prospects of prosody. Covering a range of theoretical and practical issues and applying various research methods in the study of prosody, this book makes a significant contribution in unveiling the mystery of the nature of prosody and in resolving the related controversial questions. It will appeal to not just researchers who are interested in the theoretical studies of prosody, but also readers with a research interest in neighboring disciplines such as computational

sciences, psycholinguistics and language acquisition.

There are four parts in this book. The first part discusses the prosodic hierarchy and prosodic units, the second part focuses on prosodic patterns, the third part addresses the interface issues between prosody and morphosyntax and the last part deals with prosody both in first and second language acquisition. The four parts are divided into 13 chapters, each of which is selected from the contributions presented at the International Conference on Prosodic Studies: Challenges and Prospects (ICPS), held in Tianjin, China, 13-14 June 2015.

2. The Content and Comment of the Book

In the following section, each of the main chapters will be introduced in turn and the points that need further discussion will be examined in detail.

2.1. Part I: Prosodic Hierarchy

The first three chapters are grouped under Part I focusing on prosodic hierarchy with the first Chapter talking about the

hierarchical structure of prosody in general and the following two separately discussing one specific level of prosodic hierarchy, which are the foot level in English and the clitic group level in Fuzhou Chinese.

In the first chapter, on the basis of arguing that the Strict Layer Hypothesis (SLH) in prosodic phonology is too restrictive and thus needed to be weakened, the author examines three types of approaches to counteract the problems that arise from weakening the SLH: Match Theory, Adjunction Approach, and the Composite Prosody Model. The Composite Prosody Model advanced in this Chapter crucially includes an explicitly defined prosodic constituent between the phonological word and the phonological phrase, the composite group. It is demonstrated that it is specifically the inclusion of this constituent in the prosodic hierarchy that not only avoids a number of the drawbacks of the other prosodic models, but also provides straightforward analyses of a range of phonological phenomena in different languages.

In Chapter 2, the author offers his analysis of syllabification and stress in English and claims that syllabification and stress can be evaluated simultaneously using a set of constraints, rather than being sequentially ordered. This study presents a new way to evaluate syllabification, foot structure, and stress in English. However, there are some problems to be discussed.

First, the author mentions that syllable weight is based on the length of the rime and a syllable is light if the rime consists of a short vowel without a coda, otherwise, the syllable is heavy. While according to Kenstowicz [11], Hayes [3], Gussenhoven & Jacobs [1], to name a few, the term weight is used to refer to the opposition between monomoraic (or light) and bimoraic (or heavy) syllables. Onset consonants are nonmoraic, vowels are always moraic, but coda consonant may or may not be. Furthermore, Hayes assumes that languages may or may not apply the rule of weight-by-position, by which a postvocalic consonant is assigned a mora [2]. So, it is not accurate to say that syllable weight is based on the length of the rime and a syllable consisting of a short vowel with a coda is not necessarily a heavy syllable.

Second, for some English words such as *Canada* and *city*, they are syllabified as [kæn][ə][də] and [sɪt][i] separately following the author's analysis. However, according to Gussenhoven & Jacobs, Maximum Onset Principle (MOP), a principle responsible for maximizing the onset, is a persistent principle and that additional syllabification rules must respect existing syllabification [1]. So, *Canada* and *city* can firstly be syllabified as [kæ][nə][də] and [sɪ][ti] according to MOP. Then since a lax vowel such as [ə] and [ɪ], shown in the above syllabification process, cannot end a stressed syllable in English, the onset consonants [n] and [t] in the following syllables will simultaneously belong to the coda of their preceding syllables respectively. Eventually, *Canada* and *city* will be syllabified as [kæn][nə][də] and [sɪt][ti], and the consonants [n] and [t] are said to be ambisyllabic.

Third, the author puts forward that English has both moraic trochee and syllabic trochee, and also gives three types of well-formed foot structures, which are mm, HL, and HH, in

his illustration of the new approach to evaluate syllabification, foot structure, and stress in English. Hayes also observes many systems where syllabic trochee and moraic trochee cooccur and to account for such mixed systems, he proposes the Generalized Trochee (GT), which is a foot type that includes all bisyllabic expansions of trochees plus the monosyllabic heavy foot [σ_{μμ}] [3]. The cooccurrence of the bisyllabic words with stress locating on the initial syllable such as *lemon* and the monosyllabic bimoraic words such as *tea* suggests that English is a GT language. Besides, according to Kager, GT parsing mode avoids syllabic clash and bisyllabic expansion [σσ] is blind to the internal structure of the syllables parsed [10]. However, for the third type of the foot structure HH, the author holds that there is no stress clash because at the moraic level, the two stresses are separated by an unstressed mora. This is apparently an undesirable argument following Kager, and the foot structure HH should be eliminated from the foot inventory of English. Accordingly, foot structure of the word *alpine* shown in the author's analysis should be HL rather than HH.

Chapter 3 presents a thorough investigation of the enclitics and the clitic group consisting of "host+enclitic" in Fuzhou dialect of Chinese from the perspectives of morphosyntactic functions and phonological behavior. On one hand, it shows that the enclitics in Fuzhou dialect share some common morphosyntactic and phonological properties with enclitics in other languages. On the other hand, it is found that the clitic group consisting of "host+enclitic" in this dialect does have peculiar phonological behavior as compared to lexical items and phrases, providing evidence and motivation for the existence of the clitic group within the prosodic hierarchy. Moreover, the fact that a Fuzhou clitic group composed of "host+enclitic" can dominate another clitic group shows that the violation of Non-recursivity in Strict Layer Hypothesis is allowed. Fuzhou dialect is a telling example indicating that the Strict Layer Hypothesis is too restrictive and thus needed to be weakened, which has also been discussed in Chapter 1.

2.2. Part II: Prosodic Patterns

Chapter 4 to Chapter 7 are included in Part II, which mainly focuses on prosodic patterns. Chapter 4 discusses geographical clines in prosodic patterns, Chapter 5 addresses typological issues concerning prosodic patterns, Chapter 6 deals with prosodic patterns based on statistical modeling, and Chapter 7 analyzes focus-induced prosodic patterns.

Earlier investigations of regional differences in the realization of intonation have mainly reported variation in tonal timing. The present study in Chapter 4 examines other variables such as segmental and contour duration, scaling and contour under the consideration of the effects of gender, sentence condition and dialect.

The stress-tone distinction of languages is problematic when one looks into the phonetic properties and the associated phonological patterns of stress and tone. In Chapter 5, by summarizing and comparing the similarities and differences between stress and tone, the author argues that the two might conceivably be faces of the same prosodic coin and a

conjecture that appeals to two parametric features of [PITCH] and [CONTOUR] is proposed to reimagine our understanding of prosody, which, according to the author, yields a four-way typology that appears to be supported by actual known languages, offering a fresh perspective on how their prosodies might be understood.

There are some issues in Chapter 5 that need to be fully discussed.

Firstly, based on the phenomenon that in Shanghai Dialect of Chinese, only tone of the initial syllable is preserved and other tones are deleted when syllables combine to make polysyllabic words, the author holds that Shanghai Dialect is left-prominent prosodically. What concerns us here is that whether tonal preservation can be regarded as a cue to stress and whether the autosegmental features of the initial syllable in the polysyllabic words of Shanghai Dialect accord with the word stress properties put forward by Hyman (2014), which are obligatoriness, culminativity, predictability, autonomy, demarcability and perceivability [6]. In our opinion, spreading the tone of the initial syllable across the entire word can only indicate that Shanghai Dialect is a word tone language, in which the tone bearing unit is the word, and has nothing to do with the metrical prominence. Even though we admit it that the initial syllable in the polysyllabic word of Shanghai Dialect is a heavy syllable and the other syllables are light, it still violates the rule that the adjacent light syllables are not allowed in stress languages. And when it happens, the light syllables will undergo stress lapse.

Besides, when illustrating the stress assignment of two English words [si:] 'sea' and [ti:] 'tea', the author points out that in [si:] and [ti:], stress can be assigned to the penultimate mora to form a foot, there being two morae in both cases. While according to Hayes (1995), in stress languages, the stress bearing unit is the syllable [3]. In addition, for many English words, main stress is on the penultimate syllable if it is heavy, otherwise, on the antepenultimate syllable. The syllable-based rhythm apparently diagnoses that the stress bearing unit of English is syllable rather than mora. So, the truth is that in English, both [si:] and [ti:] have two morae, which will respectively form a bimoraic heavy syllable that bears a stress. As for tone bearing unit, the author mentions that even if one claims that the mora is the tone-bearing unit, it is on the syllable that tones are contoured or level. And it is worth noting that except for mora-tone languages and syllable-tone languages, there are foot-tone languages and word-tone languages because of the different tone bearing units in tone languages following Pearce [13].

What's more, the Prosodic Essence Conjecture put forward by the author states that languages differ in specific ways in how prosodic essence is manifest depending on whether a language is [CONTOUR] and/or [PITCH]. Tonal languages like Standard Chinese fit the category of [CONTOUR, PITCH] languages and stress languages such as English fall into the category of [CONTOUR] languages (without [PITCH]) following the author. Then it is valid to ask whether [PITCH] can serve as a parameter to distinguish stress and tone. According to Hongjun Wang (2004), the results of acoustic

experiments in recent decades have shown that the phonetic realizations of stress in English are not merely greater intensity, but also include higher pitch, longer duration, resistance to reduction and so on [5]. With pitch being a means of indicating prosodic contrasts both in tonal languages such as Chinese and stress languages like English, in our opinion, it is not appropriate to set [PITCH] as a parameter to distinguish the two types of languages.

In Chapter 6, a perceptual study is conducted to test whether phonetic cues such as onset consonants, duration and glottalization, contribute to the discrimination of allotone pairs after voiced versus voiceless onsets when F_0 contours are present. The results show that the proposed three factors have no significant effects on the perception of allotone pairs and F_0 contours seem to be enough to discriminate allotone pairs with respect to voicing in the onset.

Chapter 7 firstly examines the different tonal patterns of disyllabic compound words and VP phrases in Shanghai Chinese, and it shows that the compound words undertake left-dominant sandhi while VP phrases adopt right-dominant sandhi, indicating that the application of sandhi patterns is dependent on the morphosyntactic structures. Then the authors further investigate the effects of contrastive focus on the f_0 , duration, and intensity patterns of disyllabic compound words and VP phrases in Shanghai Chinese. It is found that the focus-induced f_0 and intensity adjustments are different between compound words and VP phrases. The adjustment domain of f_0 and intensity in a compound word is the whole compound while that in VP phrases is only the focused syllable. This result indicates that the focus-induced f_0 and intensity adjustments are mediated through the prosodic structure in Shanghai Chinese.

The distinction between compounds and phrases has long been an issue in linguistics and generally they can be distinguished from the aspects of phonetics, syntax and semantics. In terms of phonetics, Yan Zhu mentions that in some Chinese Wu Dialects, different tone sandhi patterns can be indicative of compounds or phrases [15]. Experimental results of the study in this chapter show that apart from tone sandhi patterns, the effects of contrastive focus on the realization of f_0 , intensity and duration can also serve as cues in the distinction between compounds and phrases in Wu Dialects. Further research in this line is expected to see whether the approaches mentioned above can be applied in other Chinese dialects to distinguish compounds and phrases.

2.3. Part III: Interface Between Prosody and Syntax/Morphology

This part is about the interface between morphosyntax and prosody. Chapter 8 talks about the interface issues within the theory of lexical phonology and the following two chapters deal with interface problems under the framework of Optimality Theory.

Chapter 8 surveys the processes in the phonological literature that have been described as applying across content words, which mainly focus on the questions of vowel harmony and tone alternation. It is found that the effect of iterative

non-tonal processes almost always ends when the edge of the word is reached, or it fades to nothing one syllable into the adjoining word. But tone is special, there are many cases where a single underlying tone can spread its effect to tone-bearing units many syllables away, and occasionally even to non-adjacent words within the same phonological phrase.

One distinguishing property of postlexical phonological rules is that they can apply across word boundaries following Kiparsky [7-8], Mohanan [12], Roca [14], Gussenhoven & Jacobs [1], to name a few. From this perspective, we can say that tonal processes are more powerful than non-tonal processes since many tonal processes exhibit long-distance effects while most of the non-tonal processes show local effects, to answer the questions raised in the headline of this chapter and they are: What kinds of processes are postlexical? And how powerful are they?

In Chapter 9, using well-known generalizations about the way phrasal structures in Japanese are parsed into prosodic units as a testing ground, the author reports on some preliminary results regarding the role of anti-lapse constraints in pitch accent systems. It shows that Match Theory has not only resulted in a more principled and more streamlined understanding of syntax-prosody mapping relations, but has also opened up new perspectives on many prosodic well-formedness constraints.

Chapter 10 discusses some interface issues through the case studies of Xiamen and Pingyao, two dialects of Chinese. And it is found that OT fails to capture the nature of tone sandhi in the cases of both Xiamen and Pingyao and that interface theory within the OT framework doesn't have explanatory power superior to the theory of derivation-based phonology.

The research findings in Chapter 9 and Chapter 10 illustrate that while Match Theory within the framework of OT can successfully account for the linguistic phenomena in one language, it may lose its explanatory power in another.

2.4. Part IV: Prosody in Language Acquisition

This part involves not only the first language acquisition, which includes Mandarin-learning infants' perceptual development of lexical tones in Chapter 11 and Cantonese pre-adolescent children's developmental patterns of F_0 values in Chapter 12, but also concerns the positional effects and intonational effects of non-native contour tones in second language learning in Chapter 13.

Chapter 11 investigates Mandarin-learning infants' perception of Mandarin four tones from four to thirteen months of age. Two tonal contrasts, Tone 2 (rising) - Tone 3 (low-dipping) and Tone 1 (high-level) - Tone 4 (falling) are tested to examine whether there are contrast-dependent effects in infants' tonal perception. Two points need to be mentioned. First, it reveals that Mandarin-learning infants can perceive the tonal contrasts at both younger and older ages during the first year of life, showing no evidence of improvement. This is quite an interesting phenomenon that deserves further study and we are wondering whether it is the difference between suprasegmental tone and segmental consonant that leads to

this crucial difference. Second, experimental results also show that Mandarin-learning infants can discriminate the Tone 2-Tone 3 and Tone 1-Tone 4 contrasts equally well, which is inconsistent with the general point that Tone 1-Tone 4 contrast is more distinct than Tone 2-Tone 3 contrast in terms of pitch patterns and should be easier for discrimination. Based on this finding, the authors argue that contour tones are not necessarily more difficult for perception than level tones, which, in our opinion, is not a convincing argument. Though Tone 2-Tone 3 contrast contains two contour tones, Tone 1-Tone 4 contrast is not consisted of two level tones. Only when each element of one contrast is contour tone and that of the other contrast is level tone can we make the above conclusion.

Chapter 12 presents the age-related and gender-related developmental patterns of the F_0 values of three Cantonese tones [55, 33, 22] in Cantonese-speaking children aged from 4 to 12 years old and adults in early 20s. The significant findings are summarized as follows. First, the large drop of F_0 in both male and female children between ages of 5 and 6 suggests the transition from early childhood to middle childhood. Second, there is a substantial drop of F_0 value in male children between ages of 11 and 12, but F_0 value of the female children in the same age period changes slightly and is almost identical to that of the female adults, indicating that the adolescent voice change ends earlier in female children than male children. Third, for all the speakers, children and adults, male and female, F_0 value is higher for [55], followed by [33, 22] in decreasing order and it illustrates that children at four years old have acquired the adult-like pattern of tonal space in Cantonese.

Based on the above findings, the author further argues that the similarity in the F_0 developmental pattern between Cantonese and English pre-adolescent children shows that prosodic systems of languages doesn't appear to have an effect on the F_0 development and there may be a universal developmental pattern of F_0 in children. And in our view, the similar F_0 developmental pattern shared by Cantonese and English pre-adolescent children analyzed in this study is due to the similar developmental pattern of the vocal tract shared by human beings.

Chapter 13 surveys the error patterns of non-native Tone 2 and Tone 4 in disyllabic words made by 60 learners of Chinese¹ with different first language backgrounds. It is found that Tone 2 is produced with a higher rate of accuracy at word-initial positions than in word-final positions, while Tone 4 is produced with a higher rate of accuracy at word-final positions than in word-initial positions. Besides, it shows that Tone 4 is performed noticeably better than other Tone 4s when it is followed by Tone 3 or Tone 2 and the accuracy rates of Tone 2 followed by Tone 3 or another Tone 2 are always higher than when followed by Tone 1 or Tone 4, based on which, the author points out that second language tones are

¹ Chinese here refers to Modern Standard Chinese with H, LH, L, and HL indicating Tone 1, Tone 2, Tone 3, and Tone 4 respectively.

constrained by the cross-linguistically common phonetic mechanism of anticipatory dissimilation. However, as far as we are concerned, the anticipatory coarticulation involved in the production of non-native Tone 2 and Tone 4 in this study can't simply be generalized as a kind of dissimilation process. Dissimilation is a process of the avoidance of successive elements drawn from the same category [1, 4, 11, 14]. That is, two conditions must be met simultaneously for dissimilation to happen: (i) the same elements; (ii) be adjacent. Therefore, only the process of H(igh) component of Tone 2 becoming lower when followed by Tone 4 and Tone 1 (i.e. LH↓+HL/H) can be attributed to dissimilation coarticulation while the other anticipatory processes such as LH↑+LH/L, H↑L+LH/L, H↓L+H/HL can't. For the former two, the low onset value of the following tones and the H(igh) component of the preceding targets don't belong to the same tonal element; For the latter one, the high onset value of the following tones and the H(igh) component of the preceding targets are not adjacent. So, neither of the two cases satisfy the conditions to apply the dissimilation rule.

Therefore, in our opinion, the anticipatory coarticulation illustrated in this chapter is just a process of a resource tone spreading the feature opposite to the onset value of its own to the H(igh) component of its preceding target tone.

3. Conclusion

In summary, this book offers a comprehensive and thoughtful examination of a wide range of topics related to prosody, in which, not only the prosodic hierarchy and prosodic patterns are discussed, but also the interface issues between prosody and morphosyntax and prosody both in first and second language acquisition are addressed. From ontological research on prosody to applied research on prosody, the chapters of the book are well organized. It brings together the most recent research in prosody and also charts influence on some diverse fields such as multimedia communication and language acquisition. All research findings in the studies of this book are valuable, either helping us better understand the related theoretical issues or providing us with a new approach to analyze the related language phenomena.

However, there are still some problems that need further discussions. For example: Is Shanghai dialect a stress language? Apart from tone sandhi patterns, can effects of contrastive focus on the realization of f_0 , intensity and duration serve as cues in the distinction between compounds

and phrases in other Chinese Wu Dialects? Further research in this line is expected.

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