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This is a contribution from *The Development of Prosody in First Language Acquisition*.

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## Introduction

### An overview of research on prosodic development

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Prosody in spoken language, realized through patterns of timing, melody, and intensity, is used across languages to convey a wide range of language functions, which are crucial for both structuring information in speech and encoding an important set of semantico-pragmatic meanings. First and foremost, prosody constitutes the ‘organizational structure of speech’ (Beckman, 1996). We use it to separate our speech into chunks of information, thus helping our interlocutor to parse our discourse into meaningful syntactic units but also sending signals about when to take turns in our conversation. Secondly, prosody plays a key pragmatic role in conversation because it can convey a broad panoply of communicative meanings, ranging from the type of speech act (assertion, question, request, etc.), information status (given vs. new information, broad focus vs. narrow focus, contrast), belief status (or epistemic position of the speaker with respect to the information exchange), politeness, and affective states, to indexical functions such as gender, age, and the sociolectal and dialectal status of the speaker (Gussenhoven, 2004; Ladd, 2008; Nespó & Vogel, 2007; see Prieto, 2015, for a review). Finally, in many languages of the world, prosody can also encode phonological contrasts at the lexical level through stress or tonal marking.

These various organizational and semantico-pragmatic functions are manifested by means of prosodic phrasal grouping (via phrasal intonation markers), intonational prominence, and intonational modulations. While phrasal intonation markers signal the ends and beginnings of turns, sentences and words, prominence markers such as pitch accents allow listeners to pinpoint the important information in an utterance (for example, contrastive focus in English, in a sentence like *It was MARY, who painted the wall* is produced with pitch accent prominence on this element). For their part, intonational modulations typically play a vital role in the

pragmatic interpretation of speech (for example, the falling-rising pitch modulations at the end of interrogative sentences can convey an incredulity meaning). As we will see, given the key nature of these three prosodic elements, at least one them will be central to every chapter in this book.

Given these tight links between prosody and syntax, pragmatics, and phonology, the study of how prosody is first acquired by young children constitutes an important and exciting field of research, particularly because it can shed considerable light on the emergence throughout childhood of linguistic, communicative, and cognitive skills in general. In fact, the development of the ability to detect and decode prosody starts in very early infancy, even before birth, and continues through childhood until early adolescence. Research on early infancy has highlighted the essential role of prosody in early word segmentation and word-semantic mapping, as well as its facilitating or ‘bootstrapping’ role in the decoding of syntactic and pragmatic information (Höhle, 2009, among others). In addition, the special prosodic patterns often used by caregivers when addressing infants (at least in Western cultures) – what is known as infant- or child-directed speech – have been found to facilitate infants’ language learning (Thiessen, Hill, & Saffran, 2005, among others).

Given the multiple functions of prosody in communication as well as its links to so many other factors, it should be evident that achieving a truly comprehensive picture of this process must require input not only from linguistics but also fields like developmental psychology, neuroscience, speech therapy, education, and computation. Indeed, recent decades have begun to see an increasing trend for collaboration between such disciplines for this purpose, resulting in significant advances. The present book is intended to reflect these advances by providing a comprehensive, interdisciplinary, state-of-the-art overview of the multiple strains of research exploring the field of prosodic development. Each of the sixteen chapters that comprise the central part of this volume will provide a particular disciplinary perspective, with one exploring how prosody is linked with other communicative resources like gestures, for example, another looking at how it is acquired by bilinguals and special populations, and so on. In the following section we will summarize the various broad topics covered in this book, noting after each summary the specific focus of the chapters that fall within that topic.

### **Early sensitivity to prosody**

A large number of experimental studies have shown that, from a very early age, infants are acutely sensitive to the prosodic patterns present in human speech. From around two months after birth, infants have already developed some basic

knowledge about the way their mother tongue sounds, being able, for example, to discriminate among languages which differ in their rhythm and intonation patterns. Together with these rhythm discrimination abilities, infants are also able to distinguish between words with different patterns of lexical stress, or distinguish function words (e.g., *it*, *this*) from content words (e.g., *baby*, *happy*) on the basis of their acoustic characteristics. This early capacity to perceive prosodic cues in language lays the foundations for later language learning in domains such as word segmentation, word mapping, and syntactic development (see Gervain & Mehler, 2010, for a review). For example, 6-month-olds can map an auditory word onto a visual referent only when the words are aligned with phrasal prosodic constituents, a universal structural property of natural languages (see Jusczyk, 1999; Shukla, White, & Aslin, 2011).

Four chapters in this book deal with the effects of infants' perception of prosody as a bootstrapping mechanism for these milestone abilities in language development. In **Chapter 2**, "Early perception of phrasal prosody and its role in syntactic and lexical acquisition", de Carvalho, Dautriche, Millotte, and Christophe summarize evidence for newborns' early sensitivity to prosodic structure and how they use it for word segmentation in continuous speech between 6 and 12 months of age. By 18 months, toddlers can readily exploit the prosodic structure of an utterance to access some of its syntactic constituents. Together with function words, this allows them to build a partial syntactic representation which can, in some cases, help them to assign a syntactic category (e.g., noun vs. verb) to a novel word and thus to distinguish objects and actions from speech. **Chapter 3**, "Early sensitivity and acquisition of prosodic patterns at the lexical level", by Bhatara, Boll-Avetisyan, Höhle, and Nazzi, focuses on infants' early preferences for particular stress patterns. The authors show that 9-month-old infants can discriminate between different patterns of lexical stress, lexical pitch contours and lexical tones if these different patterns are relevant and contrastive in their ambient language. Between 6 and 9 months of age, infants already prefer the lexical stress pattern of their ambient language, and they seem to consider duration, pitch, and intensity as a whole to build their preferences. A section on bilingual infants is also included, showing that their developmental patterns are similar to those of their monolingual peers.

Infants' early sensitivity to prosody for word learning is the focus of two chapters. **Chapter 4**, "The role of prosody in early word learning: Behavioral evidence", by Thorson, provides behavioral evidence of how infants and toddlers use their early sensitivity to prosody to segment words from the speech stream, identify discourse referents, and map a word onto its meaning. The author argues for an integrative approach to word learning, in which prosodic cues work together with social and cognitive strategies to help infants learn words. **Chapter 5**, "The role of

prosody in early speech segmentation and word-referent mapping: Electrophysiological evidence,” by Teixidó, François, Bosch, and Männel, approaches the same issue but from a neural processing point of view. After providing a brief introduction to the technique of event-related potentials (ERP) in language acquisition, the authors review electrophysiological studies showing the key role of prosodic cues in young infants’ abilities to segment words and map words to meaning. The authors include one section on what ERP studies have shown about the role of infant-directed speech and also, interestingly, the special melodic properties of sung speech in infants’ early word segmentation processes.

Infants’ early sensitivity to prosodic cues as seen in early discrimination and preference patterns is thus crucial for early language learning. Young infants have been shown to be sensitive to a varied set of phrasal and lexical prosodic cues (or lexical pitch accents and lexical tones, if they are important in their ambient language), which they can then use to access lexical and syntactic information in their ambient language. In this fashion, prosodic cues serve to bootstrap language acquisition, since it is precisely the ability to perceive the prosodic patterns of their target language(s) that seems to trigger the infants’ learning of other linguistic domains.

## Learning to produce prosody

The early sensitivity to prosody seen in infants contrasts sharply with their very limited production capabilities. It is only between 6 and 10 months that children start to produce what is called ‘canonical babbling’, an early type of syllabic babbling which resembles consonant and vowel combinations in the ambient language. During the babbling stage, infants are also in the process of developing their motor skills, and interesting parallel development can be seen between babies’ repetitions of sounds and their arm movements. The potential connection between these two phenomena is discussed in **Chapter 6**, “Set in time: temporal coordination of prosody and gesture in the development of spoken language production”, by Rusiewicz and Esteve-Gibert. This chapter shows the strong link between prosodic and visual/gestural prominences in both adult speech and infant development. The authors review the literature that describes the synchronization between speech and motor activities of young infants before one year of age, and discuss how babbling and meaningless arm movements begin to give way to more temporally and linguistically controlled vocal and motor behaviors. For example, almost as soon as they begin to produce words, children start to properly align the prominent parts of their gestures with the prosodically prominent parts of speech.

Interestingly, the authors include a final section where they address the implications of this research for children with speech disorders.

Evidence of the lag between the development of perception and production abilities also comes from studies of rhythm development in children. There is consensus in the literature that, although language-specific perceptual sensitivity to rhythm emerges very early in infancy, the ability to produce language-specific rhythmic patterning emerges around the time children have achieved a four-word vocabulary (around age one) and very gradually develops during the second year of life. For example, a longitudinal examination of rhythmic production in young infants from the four-word point to the 25-word point (i.e., between 12 and 17 months) in typologically diverse languages found that the duration patterns of syllables differed in ways that were consistent with the language-specific input (De Paolis, Vihman, & Kunnari, 2008). In **Chapter 7**, “Speech rhythm in development: What is the child acquiring?”, a comprehensive review of perception and production studies related to the production of prosodic rhythm, Payne and Post discuss how the varying typology of rhythm across languages affects acquisition by children at different ages, as well as the effect of acquiring multiple linguistic systems as seen in bilinguals. They highlight the multiple set of language-specific factors that need to be taken into account to explain the different developmental paths reported for speech rhythm crosslinguistically.

Another area which shows the delay between perception and production is **intonation**. The early ability that infants show with respect to distinguishing pitch contrasts (for example, they can discriminate between rising and falling intonation patterns between 4 and 9 months of age and several different tonal shapes in the case of tonal languages; Frota, Butler, & Vigário, 2014; Yeung, Chen, & Werker, 2013) sets the scene for the production of stress contrasts and basic pitch contrasts around the end of their first year. In **Chapter 8**, “Early development of intonation: perception and production”, Frota and Butler summarize findings related to the development of language-specific intonational phonology from both perception and production points of view. On the perception side, they describe evidence showing when children begin to be sensitive to the inventory of pitch accents and boundary tones (together with the tonal alignment and tonal scaling patterns) that are present in their ambient language. Language-specific effects emerge very early on here, suggesting that pitch perception is not simply guided by domain-general abilities but is subject to underlying cross-linguistic differences. On the production side, crosslinguistic evidence carried out within the Autosegmental Metrical model shows that around the end of the first year infants begin to produce language-specific intonational patterns which develop quickly as they learn to map pragmatic meanings onto prosodic features during their second year.

Infants' first words usually appear side by side with babbling, these first words being sequences of sounds which approximate the phonetic forms of adult words. A great deal of research has concentrated on analyzing the **prosodic forms** of the **early words and phrases** produced by children, and determining whether we can predict these early speech forms by the prosodic characteristics of the ambient language as well as the frequency with which these structures appear in the input. This book contains three chapters that complement each other by covering different aspects of early word and phrase production. Nevertheless, all of them highlight the fact that **prosodic phonology** is now the preferred framework for describing the development of not only early words but also early phrases and even higher levels of prosodic structure like phonological and intonational phrases. In terms of prosodic constituents, the prosodic structure of an utterance is hierarchical, in that all sentences contain intonational phrases, intonational phrases contain phonological phrases, and phonological phrases contain prosodic words which in turn contain syllables (Nespor & Vogel, 1986). The three chapters review what we know so far about how infants acquire the prosodic structure of their ambient language, offering complementary views of the nature of early words and phrases, how they vary cross-linguistically and the mechanisms that can explain their forms and order of emergence.

**Chapter 9**, "Prosodic phonology in acquisition: A focus on children's early word productions", by Kehoe, presents an overview of the body of research carried out on early word production within the framework of prosodic phonology. It begins with an introduction to the background linguistic theory and then moves to a discussion of major early accounts of prosodic development, nonprosodic factors, and more recent findings from a wide range of languages. In order to account for children's early speech patterns, while earlier approaches focused almost exclusively on the constraints imposed by prosodic structure, more recent approaches have also taken into account segmental factors, as well as frequency, articulatory and perceptual bias effects. Kehoe argues that it is essential to integrate all these factors in order to support a cohesive framework of cross-linguistic prosodic development.

In **Chapter 10**, "The development of prosodic structure: A usage-based approach", Vihman proposes that the notion that children have an innate knowledge of universal principles of prosodic structure is of little help in accounting for the structures found in the early word forms that they produce. Vihman proposes an alternative view of the development of word prosodic structures, which is supported by her quantitative analysis of early child word patterns in four typologically varied languages. Her claim is that the origins of children's initial word representations can be traced back to three types of learning mechanisms that increasingly interact over the course of the first years of life: (a) experience of salient/prominent as well as frequent elements of the input speech stream; (b) constraints

imposed by the neurophysiology of vocal production; and (c) memory processes that relate the acoustic patterns children hear in their target language to existing knowledge based on production.

**Chapter 11**, by Demuth, is entitled “Understanding the development of prosodic words: The role of the lexicon”. Using evidence from cross-linguistic studies, Demuth argues that the prosodic shape and structure of early child productions is heavily influenced by the characteristics of the lexicon of the ambient language. The Chapter also includes an analysis of higher levels of prosodic structure and highlights the prosodic restrictions on the development of grammatical morphemes, articles, and determiners in children’s early productions. The chapter ends by discussing the implications of these findings for the development of higher levels of prosodic competence, as well as the need to develop a model of speech planning and production.

### **Moving to meaning and interaction: Prosody and pragmatic development**

In contrast with the wealth of research exploring the early perception of prosodic cues by children, and how they use these cues to support their acquisition of lexical (including both word segmentation and word-meaning mapping) and syntactic skills, research on the relationship between prosody and the acquisition of sociopragmatic meanings is still sparse. As noted above, an important function of prosody in language is that of marking pragmatic information ranging from emotional meanings to epistemic meanings, something which is crucial for communicative success in social interactions. Infant’s first vocalizations can be uttered with prosodic patterns which serve many functions, such as to express comfort or discontent, to make a request or statement, or to express surprise (Esteve-Gibert & Prieto, 2013). Prosody is also an important cue to mark the informational status of an element in the discourse (new vs. given, all new vs. partially new, or contrastive) and the timing of social exchanges, especially in signalling turn-taking in conversation. In essence, the acquisition of the pragmatic uses of prosody, also called prosody-pragmatics mapping, has not been investigated in detail, especially in the earliest stages of language development.

During the second half of their first year of life, infants become able to engage in joint attentional frames where infant and caregiver both attend to the same external object or event and are mutually aware that they are doing so. In these contexts, infants begin to communicate intentionally using vocalizations, pointing gestures or a combination of these two modes. In **Chapter 12**, “Early development of the prosody-meaning interface”, Esteve-Gibert and Prieto review the evidence on how infants aged between 9 and 12 months begin to map the prosodic patterns



of others' speech with their intended speech acts. Adults use different prosodic and gesture patterns accompanying actions to signal their speech act motivation, and one-year-old children can understand the main intentionality of an adult's speech act (e.g., a requestive speech act means they are asking for an object, an expressive speech act means they want to share their interest in an object, and a declarative speech act means they are offering information about some feature of an object). Likewise, infants start to signal their intended meaning by controlling the prosodic patterns of their own speech.

Newborns have a strong interest in social stimuli (such as faces, eye contact, etc.), a 'social sense' (Kovács, Téglás, & Endress, 2010) that sets the stage for the development of communicative and interaction skills. Towards the sixth or eighth week of life, babies often produce their first smiles, begin to interact face-to-face with adults for longer periods and start to exchange emotions with others. Research has shown that vocal cues are key for young infants to recognize the emotions of other people in the first half year of life. It has been demonstrated, for example, that 5-month-olds (but not 3.5-month-olds) can detect, distinguish among, and match the facial and vocal affective displays of other infants (Vaillant-Molina, Bahrick, & Flom, 2013).

Three chapters in the volume deal with the development of prosody for the expression and comprehension of affect, reviewing different ages and levels of affect information. Though their primary focus is on intentionality, in Chapter 12, Esteve-Gibert and Prieto also review studies of early infancy and show that, before the emergence of lexical and grammatical skills, infants can 'read' the emotional states of other people by processing the prosodic cues in a person's speech, and that they learn to control prosody in their own production in order to express their own emotional states. **Chapter 13**, "Gradual development of focus prosody and affect prosody comprehension: A proposal for a holistic approach", by Ito, and **Chapter 14**, "Children's development of internal state prosody", by Armstrong and Hübscher, show that although pre-lexical infants can use and process prosody as a tool to mark affect, they are still not adult-like in this respect and this ability continues to develop in later stages of language acquisition. Both chapters review the literature on preschool and school-age children and stress the fact that the study of children's use of prosody to comprehend affective states cannot be isolated from the study of how infants use prosody to comprehend other pragmatic meanings that involve complex cognitive skills. In Chapter 13, Ito relates children's comprehension of affect meaning with their ability to comprehend other uses of prosodic prominence like focus marking. In Chapter 14, Armstrong and Hübscher relate emotional uses of prosody to the expression of other internal states, like belief states.

As we have noted, prosody – and specifically prosodic prominence – is used in many languages of the world to encode information status, that is, whether

some piece of information is old/new in the discourse or important/unimportant, and even whether it should be assigned a contrastive interpretation (see Speer & Ito, 2009, for a review). When we assign focus prosody to a given word within a sentence (e.g., *Some BOYS came* vs. *SOME boys came*), we are guiding the hearer towards the central focus of the utterance's message. Thus, prosodic prominence is a strong perceptual highlighter for the location of critical information in speech. Two chapters in this volume look at how children understand and then use prosody to convey information status. In Chapter 13, Ito reviews current research on how infants develop an ability to comprehend prosodic focus and highlights the fact that prosodic prominence is used to mark not only information status across languages but also attitudinal and affective information. She calls for an integrative approach that considers the interaction between affect and focus prosody as a future direction for research on prosodic development within and across individuals. In Chapter 15, "Get the focus right: Acquisition of prosodic focus-marking in production", Chen reviews the sharp cross-linguistic differences in the ways that children use prosody (and morphosyntax) to mark focus, and then traces the different paths followed by children as their ability to produce focus develops. She presents results of studies that analyzed the production of broad and narrow focus as well as contrastive focus by children 2 to 11 years of age who were learning to speak typologically distinct first languages, primarily Dutch, Seoul Korean, Swedish, and Mandarin, but also including English, German, and Finnish. The author proposes a cross-linguistic theory for the acquisition of prosodic focus according to which the specific means of marking focus in a particular language and the lexical relevance of pitch will have a predictable impact on the age at which children are able to produce adult-like focus prosody and the order in which different prosodic means are acquired.

Prosody (and in particular intonation pitch contours) can be a strong marker of speaker belief and epistemic states across languages. Speakers use prosody (often in combination with visual cues like facial cues or body gestures) to express their (un)certainty, (dis)belief, or (non)surprise about the propositional content of an utterance. Little work has been carried out on how children develop the ability to comprehend these epistemic meanings in others' speech, and even less on how they learn to use prosody to express such epistemic meanings themselves. In Chapter 14, Armstrong and Hübscher review the evidence available so far in this regard, which shows how children's mastery of prosody for the expression of belief states interacts with their use of lexical (e.g., modal verbs), morphosyntactic (e.g., adverbs in specific constructions), or non-verbal (e.g. facial cues) cues, their acquisition of these skills being tightly linked to their overall development of their understanding of other's minds as measured by Theory of Mind tasks.

## Prosody in bilingualism and in specific populations

Most of the world population speaks more than one language (Grosjean, 2010), so most children in fact have to learn more than one prosodic system. Several chapters of the volume include specific sections on the developmental patterns of bilingual children. In general, bilingual infants seem to be able to extract, generalize, and produce the specific prosodic properties of their ambient languages at a similar age to monolingual infants, although some cues like rhythmic metrics may take them a bit longer to acquire, and their dominant language will play a larger role than their less dominant language in the acquisition process. **Chapter 16**, “Bilingual children’s prosodic development”, by Lleó, looks more closely at a bilingual population. The author presents data on how the different domains of prosodic structure (syllables, metrical feet, stress, intonation and rhythm) develop in bilingual children, revealing that although the two systems are acquired independently, there are cross-linguistic interactions between the systems.

Research describing the development of prosodic skills in children with communication disorders has also progressed. In **Chapter 17**, “Prosodic development in atypical populations”, Peppé provides an overview of how conditions such as autism spectrum disorders, hearing impairment, Down syndrome, Williams syndrome, and disfluency disorders can affect prosodic abilities in terms of both perception and expression. She concludes the chapter with a discussion of recent intervention programs based on prosody.

## Directions for future research

The chapters included in this book bring us a step forward in our understanding of prosodic development in children. One inescapable conclusion to be drawn from all this work is that prosodic development is closely intertwined with many other systems of language as well with as the acquisition of social cognition skills and pragmatic knowledge. Mastering the comprehension and use of prosody is therefore vitally important for an infant’s development of later linguistic abilities and general communication skills. Given the complexity of this process as well as its importance, it is not surprising that a full understanding of prosodic development in children constitutes an ongoing challenge for not only linguists but also developmental psychologists, neuroscientists and speech therapists.

Though the multidisciplinary research reflected in this volume has clearly yielded a significant body of essential information regarding the acquisition of prosody, we still lack a comprehensive and widely accepted theory of prosodic development. We need a theory that can not only encompass and explain

perception and production patterns—which have traditionally been studied separately—but also take into account the complex relationships between prosodic abilities and other linguistic, communicative, and cognitive skills. Given the range of fields involved in such an endeavor, this overarching goal calls for a significantly high level of interdisciplinary awareness. There are also methodological challenges ahead, including the need to find more ecologically valid research methods that combine experimental and computational methods in future studies with children. For example, for both perception and comprehension, behavioral data should be complemented by ERP and fMRI studies for a fuller picture of how an infant's brain processes prosodic features. On the other hand, recent technological developments have greatly facilitated data collection, leading to the creation of freely accessible, large-scale audio and video corpora from different languages, such as the PhonBank initiative (Rose & MacWhinney, 2014), which constitute a potential goldmine of information on the development of prosodic production. Similarly, acoustic/phonetic tools such as Praat (Boersma & Weenink, 2017) have had a profound impact on our ability to measure and analyze prosodic data. This combination of high quality recorded corpora and a tool to automatically code acoustic cues has proved invaluable to research and must be further exploited, for it has huge potential to yield important results.

The chapters in this volume have outlined a developmental path along which a set of prosodic abilities are acquired at different stages in a child's development. For example, a child's initial abilities related to rhythm discrimination give way to later prosodic skills related to word segmentation and syntactic grouping, and later still, the ability to comprehend epistemic information in the speech of others. However, there remains a need to investigate whether certain prosodic abilities at one stage can act as precursors and even predictors of later linguistic abilities. While the role of prosody as a syntactic bootstrapper has been explored (see de Carvalho, Dautriche, Millotte, & Christophe, this volume), the role of prosody as a pragmatic bootstrapper is still neglected (yet see a recent proposal by Hübscher, Esteve-Gibert, Igualada, & Prieto, 2017). Interestingly, researchers interested in gesture development have found evidence that the use of gesture by children precedes and predicts changes in language acquisition and learning (see Goldin-Meadow & Alibali, 2013, for a review). Given the strong semantic co-dependency between co-speech gestures and pragmatic prosody in languages, we would expect the learning of prosody to run in tandem with language learning.

Though sometimes neglected, prosody is a robust cue for the conveyance of essential pragmatic information in communication exchanges. An important line of investigation that needs to be strengthened is research into the relationship between prosodic development and pragmatic development. Many questions remain unanswered about the role of prosody in first language acquisition,

including the mapping between prosody and meaning, and the relationship between the development of prosody and a child's social cognition skills and pragmatic knowledge (see Stephens & Matthews, 2014). Though some of the chapters in this book have addressed the question of how prosody develops in relation to the understanding and expression of emotional information, as well as speech act, focus, and belief state information, much work remains to be carried out in this area. One of the more important challenges ahead is to unravel how children acquire pragmatic meanings through prosody using an integrative approach that considers the interaction between the multidimensional meanings encoded by prosody (see Ito, this volume), as well as to relate what we know about the development of prosody to other linguistic and sociocognitive abilities in children.

Another line of research which warrants further attention is the area of cross-linguistic comparisons, as well as the interaction of prosody with other types of grammatical domains. Data from these two directions could work together to clarify which patterns of prosodic development are universal and which are language-specific. As several authors in this volume point out, we still need to have a full picture of prosodic development across languages (e.g., Demuth, this volume; Frota & Butler, this volume; Chen, this volume). Only by means of cross-linguistic findings we will be able to discover the forces that, despite individual differences and language-specific effects, guide infants in their path to language acquisition.

As a final remark, the research reviewed in this book has important practical and educational implications which merit further exploration. Given that behavioral studies show that prosodic skills can be precursors and predictors of later language abilities as well as predictors of communication disorders, prosodic cues could potentially be put to use as tools to not only facilitate language learning on the one hand but also diagnose and treat communication disorders on the other. For example, a lack of sensitivity to pitch or durational contrasts, or emotional marking in speech, might be a precocious warning of later language delays. This suggests the need to establish standard profiles of prosodic development (and therefore universally and easily applicable prosodic assessment tools), which can be matched to profiles of pragmatic and sociocognitive development to help us identify children who show signs of non-normative development. By the same token, there is a need to assess current intervention paradigms which include prosody (see Peppé, this volume) and see how much farther this approach can take us. In general, we need to foster closer collaboration with researchers who are interested in applying this research to new educational and speech therapy practices and strategies.

All in all, we hope that this volume will be of interest to both experienced and novice researchers and will help delineate a road map for a more comprehensive theory of prosodic development.

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