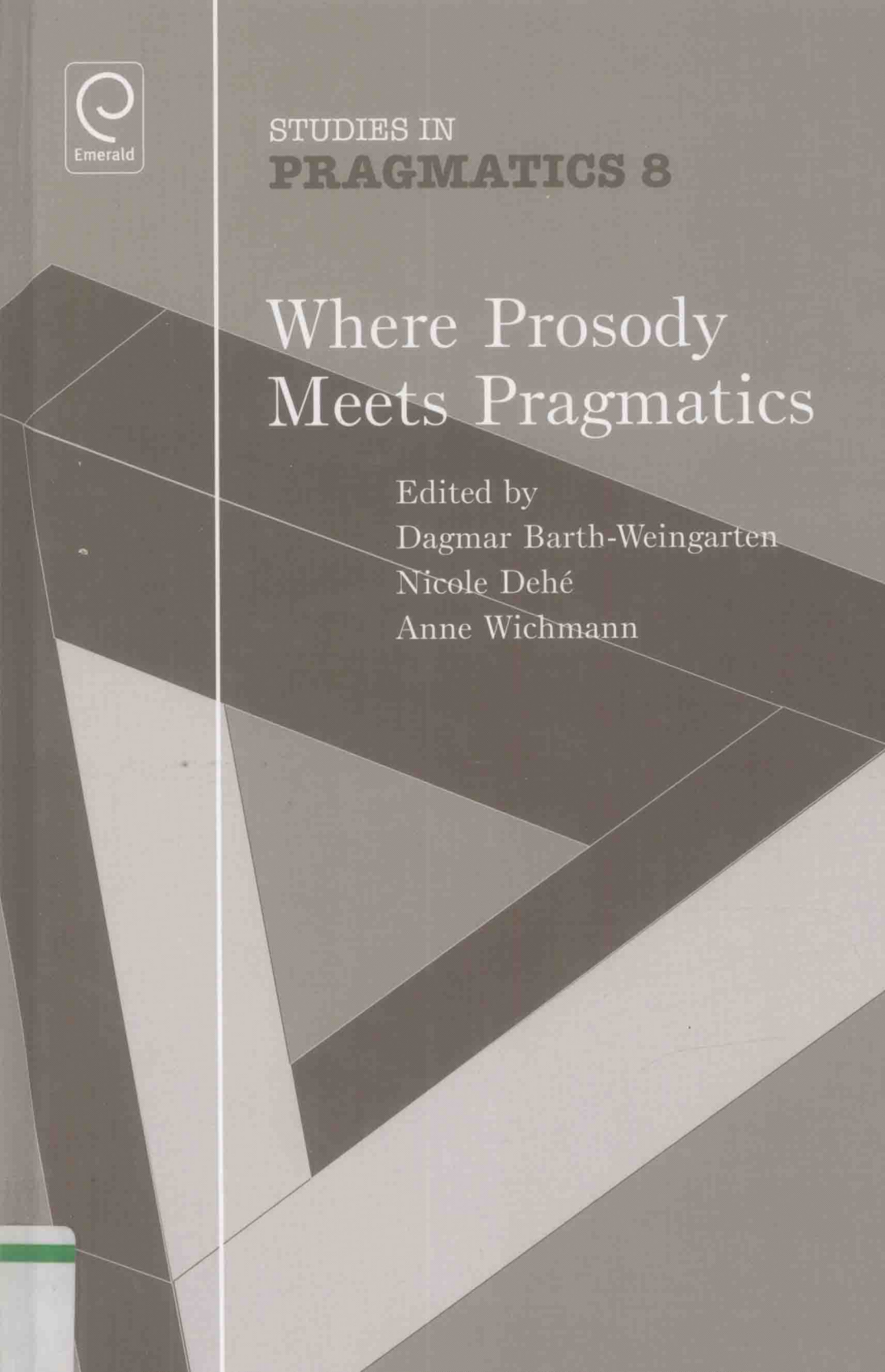
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Where Prosody Meets Pragmatics
Edited by
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WHERE PROSODY MEETS PRAGMATICS

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We would like to thank the contributors for their presentations, and the audiences who showed an interest in the panel and initiated stimulating discussions. They made the panel a great success.

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September 2009

Dagmar Barth-Weingarten
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Editors

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Where Prosody Meets Pragmatics
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1

Where Prosody Meets Pragmatics: Research at the Interface

Anne Wichmann, Nicole Dehé and Dagmar Barth-Weingarten

Pragmatics is the study of utterance meaning, and it is well known that prosody – or, more informally, 'tone of voice' – can contribute crucially to that meaning. Pragmatic effects in speech are thus the product of both what is said and how it is said, and the two are inextricably linked. However, while many working in pragmatics are well aware of the important contribution of prosody, exactly how these effects are generated is harder to establish. A number of the ways in which prosody plays a pragmatic role are set out in this volume. It aims to give a cross-section of the many different topics and approaches within the field of prosody and its interface with pragmatics.

Levinson (1983), in his textbook on pragmatics, acknowledged that the absence of prosody from his account, particularly intonation, was a serious omission, but justified the omission on two grounds: first that there was as yet no agreement on how to analyse intonation, and second that the area was understudied. Twenty-five years on, the American autosegmental model, captured in the ToBI transcription system, has become the international standard in intonational phonology (e.g. Ladd, 1996; Gussenhoven, 2004), and for typological comparison (Jun, 2005), but other models still continue to have currency, including variations of the British system of holistic contours (fall, rise, fall-rise etc.). None, however, accounts sufficiently for all pragmatic effects of prosody – which also derive from the kind of effects often referred to as paralinguistic.

Levinson's second caveat, that the area was understudied, is easier to counter. Interest in the contribution of prosody to pragmatic meaning has grown markedly in the intervening decades, albeit in a fragmented way, and from a wide variety of theoretical perspectives. The scope of these developments depends on one's view of pragmatics. The Anglo-American approach

(cf. Hirschberg, 2004) focuses on the role of prosody in relation to other linguistic systems, for example in resolving syntactic ambiguities, signalling information and discourse structure and identifying speech acts. The European tradition, on the other hand, takes a broader view of pragmatics, including the above phenomena but also adopting a wider cognitive, social and cultural perspective on meaning in context. This volume includes studies across the whole range of work on prosody and meaning, carried out within different theoretical frameworks. Topics range from studies of interaction management and turn sequencing to pragmatic implicatures and cognitive processes. Analyses include both auditory and instrumental approaches, ranging from corpus studies to case studies, and include features of intonation, timing and rhythm, phrasing and voice quality. Each chapter makes a unique contribution to the field from its own theoretical perspective, and together they form a multi-dimensional view of the role of speech prosody in generating speaker meaning.

In this introductory chapter we will prepare the ground by first outlining the prosodic resources available to speakers (Section 1), and then describing past work in the areas touched on in the chapters we have included (Section 2), in order to show each contribution in its methodological and theoretical context. Finally, we summarise the individual contributions themselves in Section 3, and briefly outline how they relate to previous research.

1. Prosodic Resources

We use the term 'prosody' in this volume to refer not only to intonation – i.e. pitch movement – but also to other suprasegmental features such as timing, loudness and voice quality. A seminal study in this regard is that of Crystal (1969), and readers are also referred to detailed accounts in the following publications: Bolinger (1989), Cruttenden (1997), Ladd (1996) and Gussenhoven (2004), which deal extensively with intonation; Wichmann (2000) and Wennerstrom (2001), which focus on prosody in discourse; and the edited collections by Couper-Kuhlen and Selting (1996) and Couper-Kuhlen and Ford (2004), which provide a good overview of prosody in conversation.

In the following paragraphs we outline briefly the role that prosodic features may play in the generation of pragmatic meaning.

Pitch (intonation) is the perceptual correlate of fundamental frequency (F0). The main difficulty in analysing intonation is that both paralinguistic and linguistic information are carried in the same acoustic channel. Pragmatic effects can be generated in a number of ways: a single phonological choice (e.g. a falling or rising contour) in a given context can turn a declarative utterance into a question, or a question into a command, or can indicate whether or not a speaker wishes to continue speaking. The choice of contour (or, in the autosegmental system, a pitch target) is generally a linguistic one, while the realisation of an individual contour – e.g. the choice of pitch range – can have a discoursal function and also a paralinguistic one. The realisation of a

whole utterance, e.g. with an extra wide or extra narrow pitch range, may signal the rhetorical relation between the utterance and that which precedes it (e.g. continuation, digression, elaboration), or it can add an element of affect, reflecting the emotional state of the speaker, such as surprise, anger or sadness. Pitch can also play a part in accentual highlighting by creating local prominences. Pitch prominence on an individual syllable may be emphatic, or may indicate the beginning of a new topic. Prominent syllables may also be a guide, in some languages, to information structure – distinguishing between what is psychologically shared or accessible knowledge ('given' information) and that which is new. This distinction can be exploited for pragmatic effect.

Some pragmatic effects are generated by aspects of speech **timing**. In English, for example, the length of syllables is related to accentuation: stressed syllables are longer than the same syllable in unstressed position; a lengthened syllable can also be a cue to a phrase boundary (a phenomenon known as 'final lengthening'). The overall speech or articulation rate of an utterance, including the distribution and length of pauses, can indicate stylistic variables, such as whether the speech is scripted or spontaneous, casual or formal, or – as in the case of parentheses, for instance – how the current information is related to the stretch surrounding it.

Loudness, the auditory correlate of intensity, can also make an important contribution: a stressed syllable is usually louder (and longer) than the same syllable in unstressed position. A sudden drop in loudness (together with an increase in tempo) may signal a parenthetical remark, and a 'raised voice' may indicate anger, a competitive interruption, or simply that the hearer is some distance away.

The final component, **voice quality**, is difficult to measure and therefore referred to in sometimes quite impressionistic terms ('breathy', 'tense', 'harsh' 'rasping'). A degree of breathiness, for instance, can indicate closeness or intimacy, while an angry voice is usually also a tense voice. Some voice qualities, such as creak, seem to occur regularly at the end of turns at speaking, and can be a signal of finality. At the same time, however, overall voice quality can also simply be characteristic of an individual.

All these prosodic features – pitch, timing, loudness and voice quality – operate both locally (at the level of the syllable or below) and globally (at the level of part of an utterance, an utterance as whole or a text). The universality of features described here has not yet been fully explored, but all have the potential to contribute to speaker meaning.

2. Approaches to Prosody and Meaning

In broad terms, the functions of speech prosody have been studied in relation to referential meaning, discourse and textual meaning, organising and maintaining interaction, and attitudinal and interpersonal meaning. Some studies focus on speaker behaviour; others pay greater

attention to hearer interpretation and inferencing, while still others emphasise sequential aspects of talk.

Not surprisingly, these topics are approached from within very different theoretical frameworks, and are also differently motivated. Early descriptions of the relationship between intonation and meaning (e.g. O'Connor and Arnold, 1961) were pedagogically motivated, a tradition continued more recently by Wells (2006). In the last two decades, work has been largely driven by the needs of speech technology: speech synthesis, automatic speech recognition and latterly interactive dialogue systems. Much of this work has been carried out either experimentally, using laboratory speech, or based on automatic analysis of speech corpora (see, e.g. Botinis, 2000). There have also been considerable advances in the development of intonational phonology (e.g. Ladd, 1996).

A separate development, with very different methods and goals, has been the interest in prosody within the ethnographic framework of Conversation Analysis (CA), an approach in which evidence is drawn from participants' response in the emergent talk. Work in this tradition was based initially on impressionistic transcriptions of prosodic phenomena (e.g. Sacks *et al.*, 1974; Jefferson, 1985), but later on close auditory and acoustic phonetic analysis, as in 'Phonology for Conversation' (e.g. Local *et al.*, 1986; Kelly and Local, 1989; Local and Walker, 2004), and, more recently, Interactional Linguistics (e.g. Couper-Kuhlen and Selting, 1996; Selting and Couper-Kuhlen, 2001a, b; Couper-Kuhlen and Ford, 2004).

In an approach taking specific account of social context, there is growing interest in the role of prosody in politeness (and impoliteness) using a Gricean framework, in which politeness, or other aspects of speaker stance, are seen as prosodically generated implicatures (e.g. Culpeper *et al.*, 2003). Finally, researchers working in Relevance Theory (Sperber and Wilson, 1985/1995), an approach to communication which is embedded in a general view of human cognition, have turned their attention to the role of prosody in the inferential process (Vandepitte, 1989; House, 1990; Fretheim, 2002; Wilson and Wharton, 2006).

2.1. Referential and discourse/textual meaning

Referential meaning can be signalled prosodically in a number of ways, most frequently by means of accent placement or phrasing. An accented syllable is signalled by prosodic features such as additional length, loudness and pitch change, and accent placement can help to clarify anaphoric pronominal reference in cases of ambiguity (see Lakoff, 1971 and Thomas, 1995: 69 for examples).

Much of the research on referential meaning has been carried out on better-known languages. However, in this volume, the chapter by **Blythe** brings an entirely new dimension to the prosody of reference by describing a language in which person reference is fraught with taboo, and in which the identity of referents is not indicated by local features such as accent placement, but by global prosodic characteristics such as pitch mimicry.

The location and shape of prosodic prominences also play a part in the signalling of information structure, especially in languages such as English with less flexible constituent ordering. Much of the discussion revolves around notions of focus, givenness and accessibility, and tends to assume an almost iconic (inverse) relationship between prosodic prominence and psychological salience. Information status is seen variously as gradient (Hajičová, 1993), or categorical (e.g. Prince 1981; Gundel *et al.*, 1993; Chafe, 1994), but there is no agreement among authors on the exact number of categories. Prosodic attenuation has been seen as a sufficient, but not a necessary condition for givenness (or activeness of the discourse referent; e.g. Lambrecht, 1994: 97), because given information may indeed be accented. A number of authors have thus distinguished between different degrees of givenness and the corresponding prosodic realisation (e.g. Allerton, 1978; Baltazani, 2006; Baumann and Grice, 2006). **Calhoun's** contribution to this volume ties in with this kind of research.

Meaning is also conveyed by the location of phrase boundaries. Speech comes in smaller chunks – intonation domains – and exactly how a stretch of speech is divided into smaller units is assumed to be relevant for the interpretation of a message. The mapping of syntax to prosody has a long tradition in relation to prosodic phrasing and prominence location (e.g. Downing, 1970; Selkirk, 1986, 1995 and related work; Nespor and Vogel, 1986; Truckenbrodt, 1995, 1999). Generally speaking, syntactic structure has been seen as input for prosodic structure, and syntactic constituent boundaries have been argued to systematically coincide with prosodic constituent boundaries. This is also important, for example, for the realisation and interpretation of utterances that are potentially ambiguous (e.g. Price *et al.*, 1990; Schafer *et al.*, 2000; Warren *et al.*, 2000; Hirschberg, 2004).

However, along with syntactic constituency, several other factors are known to play a role in intonational phrasing. Among these are syntactic length and complexity, prosodic length and weight, and balanced prosodic constituent size. Also included are performance factors such as speech rate and style of speech, focus and contrastive prominence, and semantic coherence (see, e.g. Gee and Grosjean, 1983; Selkirk, 1984, 2000, 2005; Nespor and Vogel, 1986, among many others). In this volume, **Degand and Simon** address questions related to the factors governing the relation between syntax and prosody, taking discourse genre into account.

Much research has also been devoted to the ways in which speakers use prosody to signal text structure. These observations have a long tradition, going back to notions of 'paragraph intonation' and 'paratones' (Brown, 1977; Brown and Yule, 1983), relating to global pitch trends across spoken texts. Studies of scripted monologue have found co-occurrences of phonetic features signalling a new topic: for instance a long pause, followed by a high (and sometimes delayed) pitch peak and increased amplitude (Lehiste, 1975; Wichmann *et al.*, 2000). In contrast to the extra-high beginning, a compressed initial accent is a typical cohesive device to indicate close rhetorical relations between consecutive spoken sentences, including 'elaboration', 'background' and 'restatement' (Mann and Thompson, 1988). This has been observed, for

example, in telephone conversations (Douglas-Cowie and Cowie, 1998) and in broadcast news summaries (Wichmann, 2000).

A feature of discourse which has received much attention is the use of discourse markers (see, e.g. Brinton, 1996; Aijmer, 2002; Blakemore, 2002). As grammaticalised particles, their meaning is pragmatic rather than literal. From the perspective of Relevance Theory they are assumed to have 'procedural' meaning, i.e. they 'facilitate the identification of the speaker's meaning by narrowing the search space for inferential comprehension' (Wilson and Wharton, 2006). From an interactional perspective they are seen as contextualisation cues: 'not referential but indexical signs ... cueing the context within which (an utterance) is to be interpreted' (Couper-Kuhlen, 1996: 21).

As a phenomenon more typical of speech than writing, discourse markers such as *still, anyway, well, so, now*, are also of prosodic interest. There have been studies of the prosody of individual discourse markers in a number of languages, among them English: *you know* (Holmes, 1986), *well* (Bolinger, 1989; **Lam**, this volume), *now* and *well* (Hirschberg and Litman, 1993), *anyway* (Ferrara, 1997), *so* (Local and Walker, 2004) and Swedish: *men* (Horne *et al.*, 2001).

2.2. Organising and maintaining interaction

Prosody, particularly intonation, is known to contribute to the illocutionary force of an utterance. Many studies have focused particularly on question intonation in different languages (e.g. Bartels, 1999; Grønnum and Tøndering, 2007; Vella, 2007). Both local and global parameters play a role in the identification of speech acts: yes/no questions, for example, are typically thought to display final rising contours (Hedberg *et al.*, 2004). However, Haan *et al.* (1997) have shown that questions also tend to be overall higher in pitch range. There is as yet little published typological research that would shed light on the universality of such observations: some regional varieties of British English, for example, have very different patterns associated with question and statement (e.g. Wells and Peppé, 1996). Computational studies have expanded the notion of speech act to include a wider variety of functions ('dialogue acts') including backchannel responses, 'agreement' and 'evaluation' (Jurafsky, 2004: 588), with the aim of establishing the cues that will enable automatic identification (e.g. Shriberg *et al.*, 1998; Jurafsky *et al.*, 1998). The function of utterance-final intonation contours, however, is not restricted to signalling the intended speech act. They may, for example, indicate whether or not the speaker intends to continue, or, as in the case of the much maligned 'uptalk' (a rising contour on what is apparently a declarative statement), an attempt to elicit feedback from the listener. Final contours may therefore provide the hearer with information about how to interpret the contribution of the utterance to the discourse as a whole (see **House**, 2006 and this volume).

The notion of systematic turn-taking (Sacks *et al.*, 1974) is central to the study of conversational interaction, and the prosodic correlates of turn completion, turn continuation,

as well as prosodic cues to imminent turn completion, have been widely investigated (e.g. Yngve, 1970; Cutler and Pearson, 1986; Couper-Kuhlen and Selting, 1996; Couper-Kuhlen and Ford, 2004; Szczepek Reed, 2004). Methods range from CA-type case studies to interactional-linguistic, quantitative analyses, and a number of varieties of UK English have been studied, including Tyneside (Local *et al.*, 1986) and London Jamaican (Local *et al.*, 1985; Walker, 2004). Discourse-functional approaches have studied the relationship between syntactic, pragmatic and prosodic completion and its implications for speaker change (Ford and Thompson, 1996; Lerner, 1996). The phenomena facilitating the taking of full turns have been studied for some time, but so far less attention has been paid to the organisation of non-floor-claiming responses, ranging from the withholding of responses via continuers to assessments and brief questions. Research on German and English has shown them to be produced at particular places in the ongoing turn, assumed to be marked by syntactic and prosodic cues (e.g. Lerner, 1996; Selting, 2000; Gardner, 2001; Kern, 2007). **Barth-Weingarten** (this volume) examines the placement and types of responses to extended turns-at-talk in American English.

Despite the various cues, turn-taking is not always smooth, and overlap is common, though not necessarily competitive. The prosody of interruptions, competitive and non-competitive, has been described by, e.g. French and Local (1983), Auer (1996) and Wells and Corrin (2004). In the past, these observations have been described impressionistically, in part because of the difficulty of carrying out instrumental analysis on simultaneous speech, but instrumental and quantitative studies reinforce earlier observations that speakers use pitch to indicate the nature of their interruption (see **Kurtic** *et al.*, this volume). Even when the alternation of turns occurs smoothly, without overlap, this is not sufficient to construct meaningful interaction. The turns themselves must be meaningful in a given sequence: a question generally requires an answer, and a greeting is generally followed by a greeting. Which action a particular utterance is accomplishing must be somehow contextualised, and prosody can contribute to this. In some contexts, such as phone-in programmes, a greeting can simultaneously function as a request to participate, and interlocutors then have to negotiate whether to re-initiate the greeting-greeting sequence or not (see **Szczepek Reed**, this volume).

2.3. Style, stance and interpersonal meaning

The attitudinal function of prosody is undisputed, and there is renewed interest in how it works, due to the development of human-machine dialogue systems. This has prompted the desire to generate machine voices that sound 'friendly' or 'polite', along with the aim to recognise when human customers are irate, frustrated or just plain exasperated (Ang *et al.*, 2002). But the nurturing of human participant relationships, or 'rapport management' (Spencer-Oatey, 2000), is also of interest for pragmatics in general.

One element in the maintaining of 'rapport' is the vocal expression of emotion. This is of interest to many, including psychologists, neuroscientists, sociolinguists, clinical linguists and speech engineers, and yet it remains difficult to establish clear phonetic correlates between recognisable emotions and speech (see Scherer, 1986; Murray and Arnott, 1993; Abelin, 2004), partly because of the infinite array of labels used. Research has therefore focused mainly on 'primary' emotions such as happiness, anger, sadness and fear, and these appear to be typically characterised in terms of pitch (height, range, contour). However, many of the labels used to describe affect are more suitably categorised as 'attitudinal' – i.e. indicating a stance or behaviour towards an interlocutor rather than the mental state of the speaker (Couper-Kuhlen, 1986: 186) – and thus fall more clearly within the field of pragmatics. The search for direct acoustic correlates of attitudes, as for emotions, continues. Ito (2003) claims, for example, that a breathy voice quality is an indicator of politeness in Japanese. It is also possible, however, that this and many other perceived attitudes are in fact prosodic inferences that have been generated indirectly. For example, Scherer *et al.* (1984) and Ladd *et al.* (1986) show in two early examples of research in this field that attitudes are not inherent to any particular contours or other phonetic patterning. Rather, 'the pragmatic effect of an utterance depends on its immediate context as well as its suprasegmental structure' (Ladd *et al.*, 1986: 128) and judgements such as *agreeable, polite, courteous* cannot reside in the prosody alone, but are meanings inferred from certain juxtapositions of prosody and context (see also Culpeper *et al.*, 2003).

In particular, it seems that any marked prosodic realisation – i.e. one that departs from a general norm – will trigger the search for an implied meaning much in the way that textual implicatures are generated. This is the basis for studies such as Couper-Kuhlen (1996), which describes the attitudinal effect of relative or absolute pitch matching across speaker turns. Relative pitch matching, or pitch concord, has been noted by Brazil (1985) and more recently by Wennerstrom (2001) and Szczepek Reed (2006): it occurs when one speaker matches the pitch of another by using a corresponding region in their own voice range. In Gricean terms this is 'co-operative' behaviour, and Couper-Kuhlen suggests that it is perceived as supportive. However, a close melodic imitation, when a speaker matches another speaker's pitch exactly ('absolute register matching') is perceived as mimicry, and thus as mocking the other speaker. The kind of mismatch that juxtaposes a semantically positive utterance with the semblance of negative affect is frequently used to convey irony. In a situation that clearly requires a negative response, responses such as: *Oh great, That's just what I needed*, or *Oh wonderful!*, will convey irony, and the underlying negative meaning will be reinforced by a semblance of negative affect in the voice (e.g. low pitch, narrow range: see Tepperman *et al.*, 2006 on *Yeah right*).

Interpersonal relations are not only influenced by prominent, affectively-loaded utterances. They can be equally influenced by more subtle ways of (dis-)affiliation and the production of (dis-)preferred responses to sequence-initiating actions. The notion of preference is a formal, rather than a psychological, notion: for example, the preferred response to a proposal is an

acceptance because it is typically performed without hesitation, delay and/or further elaboration (cf. Pomerantz, 1984; Cameron, 2001: 97). Dispreferred responses, by contrast, tend to be more elaborate (*yes please* vs. *well actually I'd rather not*), and may also be prosodically marked by an overall slowness (**Plug**, this volume). The affiliative or disaffiliative effect of prosody is also observable in the realisation of response particles or 'continuers' (Schegloff, 1982: 81), such as *m-hm, uh huh, right, yes, OK*. These are generally assumed to be supportive (hence 'continuer'), but in the absence of melodic and rhythmic integration they can also subtly indicate the opposite (Müller, 1996). Studies such as these would suggest an almost iconic relationship between preference or affiliation and timing, but there is other evidence that suggests that this relationship may be more complex. For instance **Couper-Kuhlen** (this volume) challenges the assumed iconic link between relatedness (or affiliation) and timing of successive turns with the example of abrupt joins and certain types of delayed news deliveries.

Finally, an interesting area of research into spontaneous speech has focused on the prosody and function of apparent disfluencies – hesitations, filled pauses (*um, uh* etc.), and repair cues (Nakatani and Hirschberg, 1994). These are generally assumed to reflect language-planning difficulties on the part of the speaker. However, Clark (2004), who focuses on conversation as a jointly coordinated activity, sees them equally as hearer-oriented, and **Horne** (this volume) shows that they may also have a stance-marking function, including epistemic stance, suggesting doubt as to the precision of the utterance, and thus operating as a kind of hedge. In this way, disfluencies may also contribute to the expression of interpersonal meaning in interaction.

3. The Chapters

The contributions in this book represent different approaches and different foci. They are organised according to the broad themes we have discussed above.

- *Signalling referential and discourse/textual meaning;*
- *Organising and maintaining interaction;*
- *Signalling style, stance and interpersonal meaning.*

3.1. Signalling referential and discourse/textual meaning

The chapters in the first section examine prosodic cues to referential and discourse/textual meaning.

Blythe's chapter, "Prosodic person reference in Murriny Patha reported interaction", contributes to research on the relation between prosodic means and referential meaning, focusing in particular on person reference. His contribution extends the range of languages discussed to