THE FORMS AND FUNCTIONS OF INTONATION IN THE PHONE VOICE

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ABSTRACT
The paper describes patterns of pitch in secretarial business calls. Distinctive patterns are used in a formulaic way. Some are associated with particular parts of calls such as openings, transfers and closings; others mark transitions between key stages in calls.

INTRODUCTION

'The phone voice' is a commonplace expression. Presumably the expression reflects the fact that there is something distinctive about the way we speak on the phone. Much of what is distinctive undoubtedly lies at a prosodic level, and a few papers have begun to address prosody in phone conversations [1], [2], [3]. This paper adds to that body of knowledge. We focus on patterns of pitch in phone calls. These are known to have distinctive properties, but they remain partially described.

Several authors have noted the need to develop our understanding of intonation in interactive discourse [4], [5]. Phone calls are a useful context for that development because they offer prosodic patterns which are less easy to take for granted than most.

The study considers a specific class of calls, secretarial business calls. These presumably have special features of their own, but they also seem to encapsulate in extreme form what people describe as 'the phone voice'.

Our emphasis is on broad patterns within calls and their relation to communicative functions and roles. This is a necessary complement to close analysis of local features.

THE DATA

The study uses the speech of three secretaries in the School of Psychology at Queen's University Belfast. Each of the three recorded her own voice over a working day whenever she answered phonecalls or made them. Each secretary had control over the tape-recorder, so she could switch it off whenever she wanted e.g. during confidential calls. After some initial switching on and off, the secretaries tended to leave the tape-recorder running. The secretaries were chosen because auditorily they all appeared to have distinctive phone voices, though to varying degrees. A total of 82 calls were recorded. The voice of the other person on the line was not recorded, so the analysis is restricted to the secretaries' voices. The recordings also gave long samples of the secretaries' voices off the phone. These have been used as a reference point with which to compare the secretaries' phone voices.

RESULTS

Initial analysis revealed an overriding feature in the phonecalls - that they were highly formulaic. This was apparent in terms of both discourse structures and patterns of pitch, and there were clear relationships between formulaic aspects of the discourse and formulaic aspects of the pitch. These observations led to a second stage of analysis in which the observed structures of discourse and patterns of pitch were systematically examined. This was done by generating a template against which phone calls were systematically measured.

At a macro level calls were divided into a number of key functional stages. These are: (i) an opening phase characterised by formulaic greetings (e.g. 'School of Psychology' (ii) a post opening phase in which the function of the call is either signalled (in the case of initiated calls) or acknowledged (in answered calls) (iii) a transfer to another person (if required) (iv) an interaction stage for non transferred calls or for failed transfer calls (v) a preclosure phase in which a resolution or conclusion is reached (vi) a preclosure sequence of closing formulae (e.g. 'okay then, right, fine, okay') (vii) a final closing phrase.

Calls were divided into parts corresponding to these stages. For each part gross pitch descriptions were recorded. These noted overall pitch height, pitch variability and any pitch transition marking shifts to a new stage.

At a finer level, pitch patterns within each stage were more finely described in terms of shape, direction and patterning. Analysis was primarily auditory, but it was backed up by acoustic measurement when the need arose. Other relevant information was also recorded, in particular whether calls were initiated or answered, the main topic, the function of the call and the general mood.

The resulting records display clear relationships between formulaic aspects of the discourse and formulaic aspects of the pitch, at both macro and micro levels.

Macro structures

Macro levels are addressed first. The main point is that the majority of calls follow a broad formula in their structure, corresponding to the stages set out in the template. These stages appear to be marked by gross pitch signals involving overall pitch height and pitch transition.

The formula is not invariable. In particular, patterns of pitch height and pitch transition depend on whether the calls are answered or self-initiated. However both categories of call show a similar underlying pattern.

It is usually possible to identify a relatively constant central pitch within a stage: transitions between stages are marked by noticeable transitions in pitch height. These transitions themselves follow a larger pattern. They can either continue in the same pitch direction (upwards or downwards) for a series of stages, or they can show a type of yo yo effect where transitions move pitch between alternate levels.

Figure 1 plots pitch height against stage of call for a number of actual calls.

There are clear surface differences between answered and self initiated calls. Answered calls show a very regular pattern in their beginnings and endings. Pitch is characteristically high or very high in both. Self initiated calls end high to very high, like answered calls, but they tend to start start slightly lower.

In the portion between opening and closing, self initiated calls consistently show a concave pattern, dropping to the interaction stage and rising progressively through the three closing stages. The picture in answered calls is much less clear: some of the variation is considered below.

Several types of variation occur regularly.

The pattern of a clear central pitch within stages is linked to stereotypic interaction. When the secretary engages the listener to tackle a substantial task, pitch moves widely and unpredictably. This underlines the fact that stereotypy is a key issue in pitch patterning.

Some self initiated calls start quite low. Low openings occur in three particular types of calls: (i) continuations of earlier conversations between the secretary and the other person; (ii) calls where the secretary clearly expresses doubt or concern about how to resolve a central issue; (iii) calls where business is mixed with personal conversation.

A key variation in answered calls relates to a particular subtype, that is calls involving transfer to someone else. In these calls pitch is maintained high right from the opening stage to the point where the transfer is successfully executed (see calls Ans 1 and 2, marked with circles). This is unlike other answered calls where pitch drops sharply for the post opening phase (calls Ans 4 and 5).

Calls where transfer is attempted and fails form an interesting subgroup. Pitch is still maintained high right through any ensuing interaction (see call Ans 3). This continuation of the same pitch is as if the phonecall is held, as it were, at the opening stage: the secretary remains an intermediary whose role is to connect two other people, not a protagonist.

This suggestion fits evidence from calls which do not involve transfers, but follow a similar pitch structure. These involve situations where the secretary knows that she will be unable to deal with a query or to resolve the situation satisfactorily. Again, the secretary never fully engages in a satisfactory interaction.

Micro structures

Individual stages of phone calls are also formulaic, both in text and pitch patterns. We focus on openings, closings and transfers. These generally consist of stock, formulaic phrases. The patterns of pitch associated with them are similarly formulaic and distinctive.

Openings generally consist of stock greeting phrases and are marked by an

underlying pattern that juxtaposes fairly restricted pitch movement with extreme pitch movement. This holds in both answered and self intiated, with some variations. In answered calls, for example, the common pattern is a fairly level stretch followed by a very sharp rise to extremely high pitch (see Figure 2, left hand panel: the phrase is 'School of Psychology'). By comparison self initiated calls generally start with a level phase and end in a sharp fall.

Transfers also involve stock phrases accompanied by regular patterns of pitch. Some are addressed to the caller in phrases such as 'just hold on', and others to the object of the transfer (as in 'Peter, a call for you.'). Different patterns occur, but they are generally quite distinctive. They display sharp pitch movement, which may be preceded or followed by a phase of limited movement. Figure 2, right hand panel, shows an example for the phrase 'Just hold on a second please'.

Closings follow a distinctive formula involving two parts - first a build up of closing gestures (e.g. 'okay then, right, okay' etc) and then one final formula (usually in these calls, 'bye'). Figure 3 shows a typical closing pattern for the phrase 'That's fine, okay, bye.'

The closing gestures often show an alternating pattern where the pitch jumps up and down in quick succession. Pitch is also held much longer than normal on particular syllables, giving a singing-like quality. The final closing formula is usually marked by extreme pitch movement, classically on the word 'bye' where 'bye' is divided into two syllables, and the second syllable [e:] is held on a level pitch.

DISCUSSION

The use of pitch in phone calls appears to be distinctive, particularly at the level of formulaic patterns associated with particular stages. It is not clear whether similar patterns occur in other forms of speech: one might expect them to be extremes of a normal distribution.

One explanation for the patterns reflects a normal function of intonation, that is, to convey conversational signals e.g. opening, closing, taking turns etc. In the absence of visual cues, the load on these signals increases. Phone voice may provide enhanced intonational markers,

and perhaps markers of types that are not normally be carried by intonation. Note also that cue reduction makes repair processes difficult on the phone. Conversational markers may be enhanced to avoid the need for repair. The general simplification and exaggeration of pitch patterns fit this account, and formulae may be seen as tried and tested solutions to a difficult problem.

A second theme is that formulaic patterns are a means of depersonalising interaction. They present prosodic features which reflect the speaker's role rather than her individual thoughts and character. The theme of depersonalisation provides a link between intonation and the segmental level, where the secretaries use forms which mask their local identity. For example, in normal conversation they all have marked forms of Ulster regional speech. But on the phone they use a much less regionally marked accent with partially Anglicised forms.

The element of role playing is not hypothetical. The secretaries told us that when they made calls they were not speaking as themselves, but as representatives of the organisation. In that capacity, they had two responsibilities. One was not to let their own personality interfere with the way they talked to callers. The second was to present a 'good' image of the organisation. We think this is an observation well worth following up.

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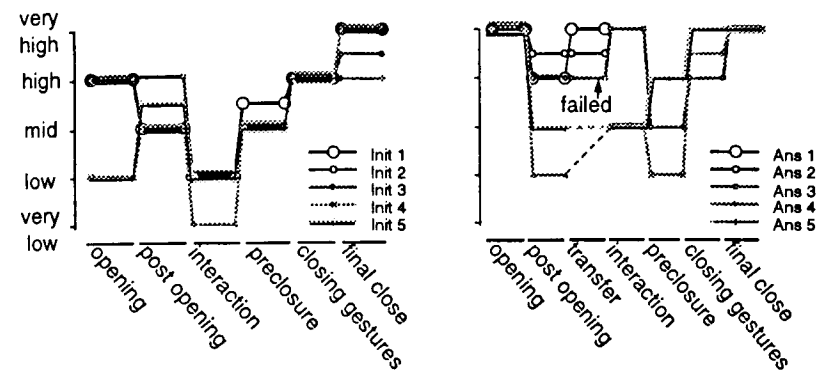
Figure 1: Pitch height and stage in representative calls, initiated by the subject (left hand panel) and answered by the subject (right hand panel).
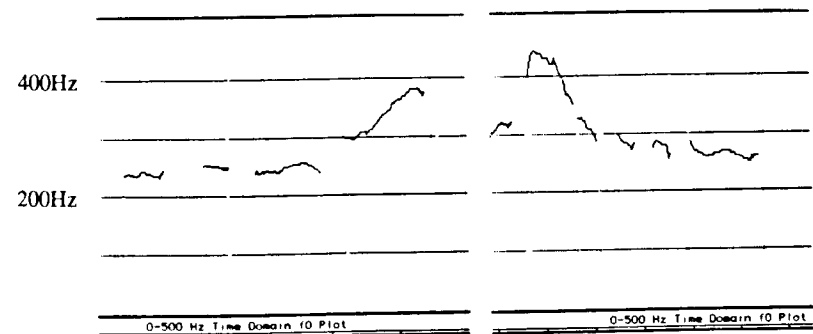

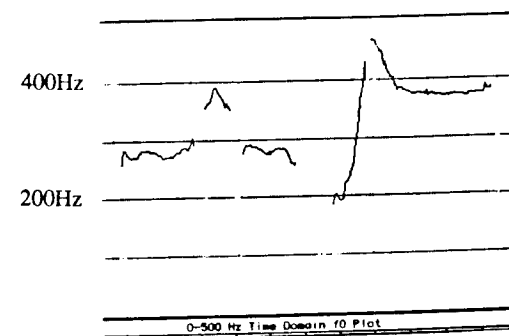Figure 2: Opening greeting (left hand panel) and transfer (right hand panel)

Figure 3: Closing gestures followed by final closing stage